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WHOLE EARTH REVIEW

ACCESS TO TOOLS & IDEAS

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COVER: High school students in salmon suits teach younger kids the basics of watershed stewardship. Photo by Darrel Smith

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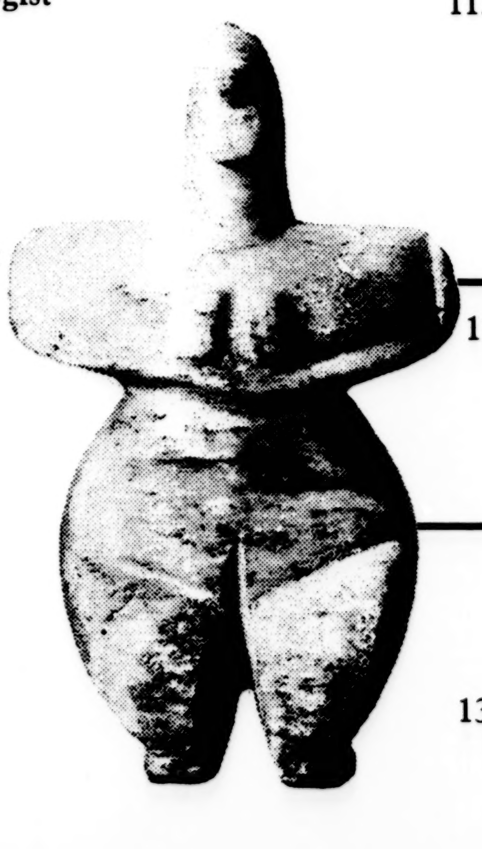

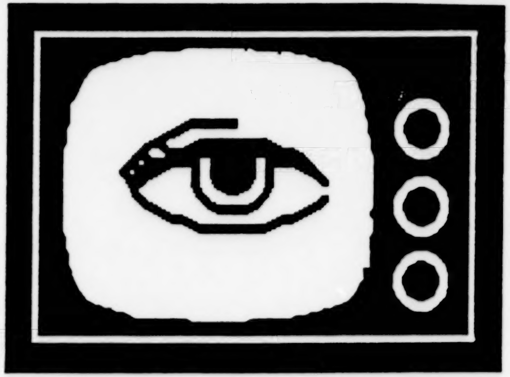

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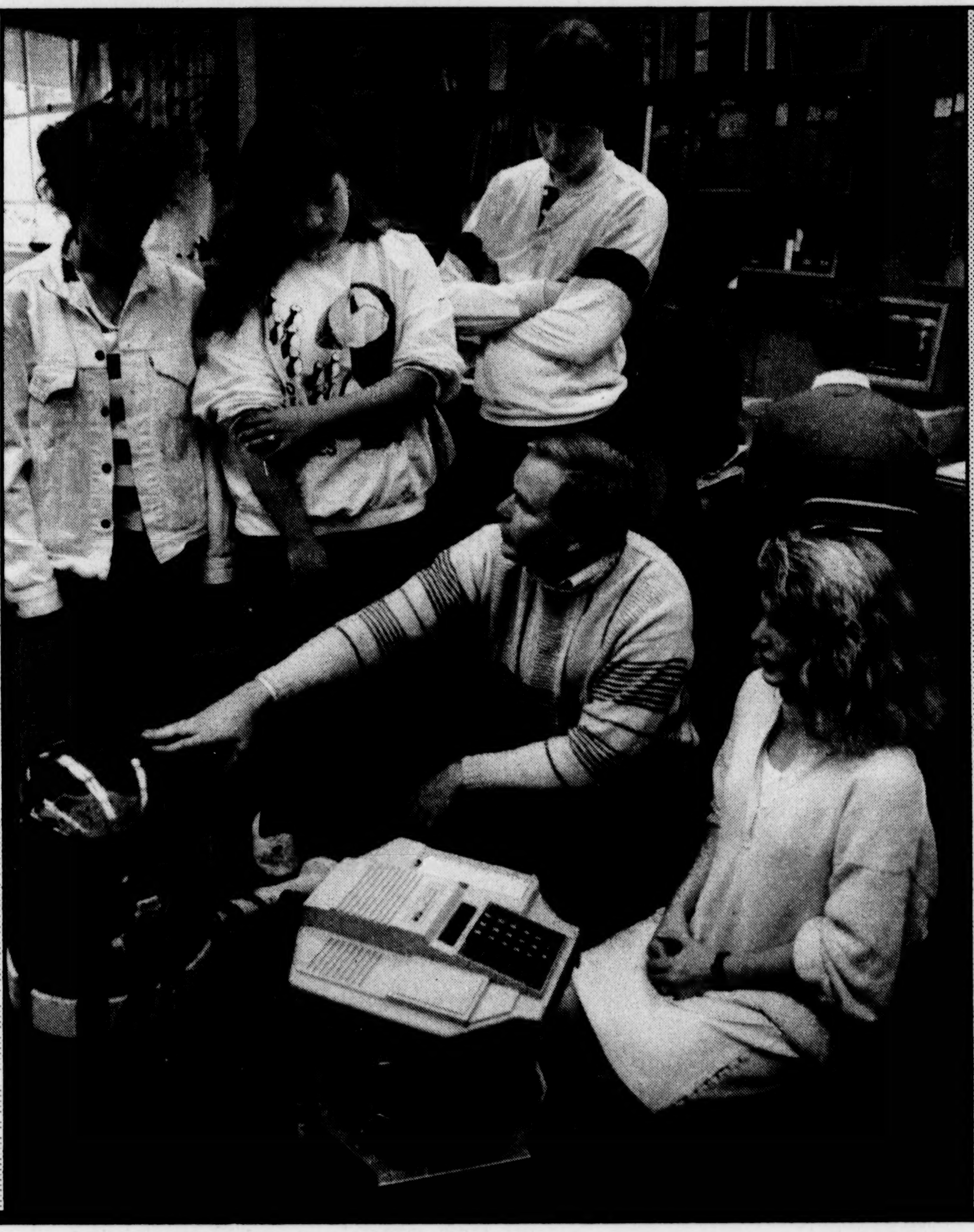


ROBO PROF

by James Halpin

photography by Kim Zumwalt

KJELL-JON RYE, Bellevue High's pied piper of technology, is standing in the middle of his workshop serenely contemplating his students working as devotedly as honeybees on their projects. There are about 25 kids divided into groups of two, three, or four. They are working away with robots, lasers, plotters, and computers. They are so concentrated on their tasks, they don't even look up for visitors.

How has this man motivated these teenagers into studying with such astonishing industry? If it's charisma the man has got, he's sure not flaunting it right now. He's only 31, but he's already

---

Longtime WER *reader Roger Knights spotted this article for us in the* Seattle Weekly, *which paper has kindly granted permission to reprint this slightly shortened version.* *—J. Baldwin* kind of pudgy and sort of subdued-looking too, like somebody happy to have a steady job in the municipal building permits department. If you had to describe him in a word, you'd probably say "average." Everything is average: height, weight, appearance, voice, dress, manner. It is very unlikely you would ever suspect that you are in the presence of an iron-willed man with a mission he intends to carry out. Nor would you guess that Kjell Rye is an extraordinary world traveler, an adventurer who speaks half a dozen languages. He is also the master of a dozen trades. He can make, or repair, just about anything. Least of all would it cross your mind that underneath the quiet man is a passionate celebrator of life — a painter, poet, and sculptor, a musician, dancer, and singer. And, of course, he is a teacher, maybe the best we have around.

Just why he's a great teacher isn't too apparent either. He doesn't seem to be doing anything. The kids are slaving away and Rye is just kind of complacently observing things, like a ship's captain watching his crew scrub down the deck. "I never offer advice unless I'm asked to," he explains. "Even then, the question has to contain the word 'why.' One of the things I want my students to learn is that they can find out just about anything on their own."

What Rye should be teaching is industrial arts. At least that is the position the Bellevue School District hired him to fill four years ago. The first thing Rye did was change the name from "industrial arts" to "technology." "Industrial arts has a connotation of a woodshop making birdhouses," he says. "These kids weren't even born when man first walked on the moon. So why are we teaching them the same things my grandfather was taught? Why are we preparing them for the last century instead of the next one?"

> ***"'What do you do to my kid to make him give up a ski trip so he can work all weekend with four students who were total strangers a few weeks ago?'"***

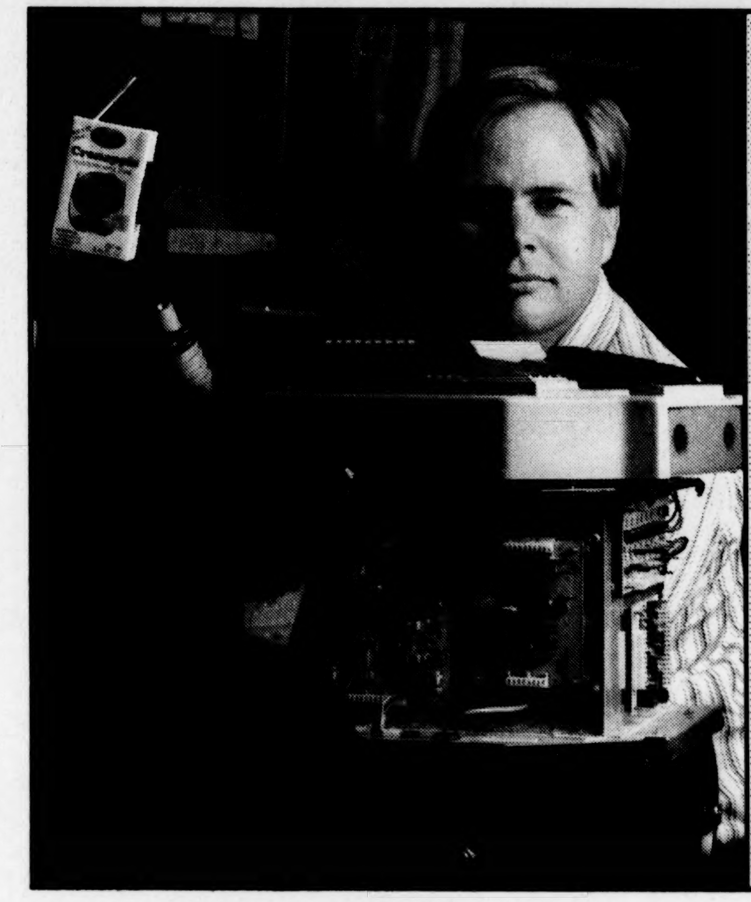
The way Rye started preparing his students for the 21st century was to load the existing shop equipment into trucks and haul it off to the dump. Technology education, he explained to his startled superiors, has little to do with equipment but a great deal to do with the unleashing of the human imagination.

Rye started (and still starts) his introductory classes with the same equipment kindergarten teachers use: paper, scissors, and tape. "Usually, I show them a sheet of paper and ask them what it is," says Rye. "When I get the answer I want, that it is paper in the form of a sheet, I ask them to describe its dynamics. When they tell me it's flimsy or weak, I have one student use it to drag another student seated in a chair across the room. After we discuss the dynamics of sheet materials, I give them a half-hour to build the tallest tower they can. Some have been more than six feet high. In a later class, I have them build a paper bridge strong enough for a matchbook car to cross. We discuss how we'd use what we learned to make towers and bridges out of other materials."

It pleases Rye when visitors remark that his class looks more like a lab in a high-tech corporation than a classroom. "My intention is," he says, to "to make my students think and act as if they were running fiercely competitive companies in the real world."

Rye has succeeded almost too well. He teaches about 145 students a semester with students averaging three after-school hours for ever hour they attend class. Kids sometimes arrive at the workshop at 6 a.m. and have to be kicked out at 10 o'clock that night so Rye can get some sleep. "Parents are astonished that I can get this kind of dedication out of my students," Rye says. "One of them asked me once, 'What do you do to my kid to make him give up a ski trip so he can work all weekend with four students who were total strangers a few weeks ago?'"

What Rye is doing is so obvious and so effective that the wonder is that every school in the country isn't doing the same thing. Jason Osgood, a recent Bellevue High graduate, puts it this way: "I had a lot of good teachers but none of them gave me what Mr. Rye gave me — the skills to get a job and hold it. And I'm not talking about flipping burgers or parking cars, either. I'm talking about good-paying jobs with a future." Within a year of graduation, Osgood was working for Microproducts in Renton and making almost twice as much money as Kjell-Jon's monthly take-home pay. "Mr. Rye did two great things for me," Osgood says. "He kept me in high school and he told me not to go to college. I would have



Kjell-Jon Rye will send you a bunch of detailed information on his work if you send $5 to him at 1811 127th SE, Bellevue, Washington 98005.

lost it in college. I'm not the sit-down-and-study type."

This realistic view of things is at the very essence of Rye's teaching methods: "He teaches you how to work in a real environment," Osgood says. "Most of our work is done in teams and the team is graded on how it performs. When your own peers are down on you there's a lot more pressure on you to perform than you'd get from just a teacher."

At the heart of Rye's method is what he calls Technology Learning Activities. Every TLA group works like a corporation that has one or two weeks to design, manufacture, and market a product that will solve a problem. In one TLA, Rye splits a class into competing toy companies. Their task is to design and build safe toys for preschool children. The toys have to be made out of non-toxic, long-lasting materials. The toymakers test their products in a district preschool. The judges are a child psychologist and students from Bellevue High's home-economics classes. The grades are based on four criteria: did the preschoolers like the toy? Did they play with it for more than five minutes? Did it last all day? Did the preschoolers learn anything?

In another TLA, students have one week to build, test, and market 6-inch prototype cars made out of paper. The cars are test-driven down a steep 10-foot ramp. Afterward, they are marketed in glitzy miniature display rooms where hard-sell radio and TV commercials blast away.

Rye's methods are beginning to generate a lot of excitement in the educational world. He conducts about 20 seminars a year around the country, and educational journals are writing about him. Quite a few teachers are already copying his techniques. The paper car project, for instance, has been adopted by more than 60 schools in the U.S. and by schools in five foreign countries.

Rye's students sometimes work on solving very real problems within the school itself. The school library and radio station were remodeled on architectural plans drawn up by his students. "The constructor praised the blueprints," Rye recalls. "He said very few architectural firms pay that much attention to detail and that the plans were among the easiest to follow he had ever worked on." Another group of students solved the school parking problem by coming up with a more efficient angle for parking cars and by designing a new lot. Currently, another group is designing a concession booth for school ball games.

STUDENTS CAN TAKE up to four years of Rye's courses if they have the stamina. Those who take on advanced projects frequently find themselves on the cutting edge of technology. Three years ago, for example, four students set out to build an automobile that would go 1,000 miles on a gallon of gas. They never came near their goal. But they did enter their car in a fuel-economy competition with Western Washington University. They came in second, but not by much. Their car did 170.45 miles per gallon as against WSU's 180.8 mpg. WSU had worked on its vehicle for three years, while Rye's students did theirs in three months (at a cost of $60). The story went over the AP wire and was printed in newspapers across the country. More than a half-dozen schools around the country have since adopted similar projects.

Greg Meboe, the car's driver, is now part of a four-man team engaged in the most astonishing project any of Rye's students have ever undertaken. This group is actually building and equipping a complete laser laboratory. They are raising the estimated $2,500 the lab will cost by requests for funding from businesses and foundations. "The only space available was my office," says Rye wryly. "So they kicked me out of it, and now I have to do my paperwork in the shop." The first thing the team did was gut the place and paint it black. Then they conceived and built a doorless entrance consisting of coffin-shaped baffles set at an angle that blocks all outside light. Next they built a 2½-ton sand table that rests on industrial tires so lasers remain rock-steady during experiments, even when heavy vehicles are passing. The team is now using the lasers for holographic experiments and is looking into the possibility of putting a hologram on the cover of the school annual.

The four students are also experimenting with a fiber-optic communications network. The team leader, Lyle Corbin, explains to visitors how it works with a clarity that many an experienced teacher might envy: "Fiber optics is a glass fiber thinner than a human hair. It is so pure that if the ocean were made of this stuff you would be able to see all the way to the bottom of the deepest part. It is cheap, about $5 for 50 meters, and lasers can transmit voices through it. Unlike ordinary conductors, it cannot be interfered with by magnetic or electrical forces like transmission plants. Light, of course, interferes, but this is easily prevented by covering the fiber optics with a lightproof substance."

Corbin, the originator of the project, has put together a hard-working team with synergizing skills. Besides being well-versed in electronics and lasers, he is a careful writer who drafts the grant requests for the programs as well as periodic reports on its progress. Meboe is a metalworker. Evan Miller is a woodworker. Robert Freeman, besides doing the architectural drafting, is the fundraiser. He has gotten money and/or equipment from Boeing, GTE, Virginia Mason Hospital, and Coherent Medical Corporation of Palo Alto.

Because the teams work long hours under pressure, there are often personality clashes. Rye expects his students to solve these problems on their own. "One of the skills you learn is how to get along with fellow workers," Corbin says. "You have to learn to iron out differences and also how to tactfully accept or reject ideas."

Although behind schedule because building permits were delayed, the team is going ahead on the most startling of all their scheduled laser experiments. The project is nothing less than a series of tests to decide whether the government's Star Wars defense plan will work, and if so, how well. The team plans to suspend satellites on tracks hung from the ceiling. The satellites will be armed with lasers and gyro mirrors. The team will use this weapon to try to shoot down missiles in the three phases of attack: the initial launch; while they are in space; and during re-entry.

The project is so original that the Office of Technology As-

Students must think for themselves — advice comes only when requested.

Student-designed vibration-free sand table holds holography experiment.

sessment, a nonpolitical investigative arm of Congress, has asked the team to write a report on their findings. Rye sees nothing amazing about the fact that the Congress of the United States is asking four high-school kids for advice. "I just happened to be in Washington, DC, doing some consulting work for the OTA," he says. "I mentioned the project to them and they got very excited about it because there's very little nonpolitical testing of Star Wars going on. So the Laser Research Team's findings will be incorporated into the OTA's report to Congress and could very well affect the outcome of the voting."

When the laser team graduates this year, they will leave as their legacy a well-equipped laboratory, as well as a log outlining the results of all their completed experiments. "That way," says Corbin, "new students can pick up where we left off."

In upper-level classes, Rye encourages students to specialize in a technical field. In such explorations, they have to find an outside expert or organization to act as a mentor. One student this year got a helicopter manufacturer in Minnesota to work with him in developing a model of a foot-operated helicopter. The manufacturer gave the model every conceivable test and reported back that a full-sized model would actually get off the ground, though probably not much more than a foot. The only thing that prevented the young inventor from developing a full-scale prototype was the cost of liability insurance.

"It doesn't take a lot of money to teach technology effectively," says Rye. "These projects are all self-funding and self-renewing. You don't have to have brilliant or even motivated students, either. Technology and science should not be just for the elite. I try very hard to get troubled and special-education students into my classes. One of my special-needs students is in demand with all the groups. Why? Because he's always there, ready to follow directions. After graduation, he may well be working in a service trade, and he's going to be doing the same thing he did in my class because that is a realistic level for him to achieve. One of the most successful projects we've ever had here was carried out by a four-person team that was made up of a convicted burglar, a learning-disabled student, a foreign kid who couldn't speak English, and a kid who was seriously introverted."

In the living room over coffee, Rye grouses about the low status and pay of teachers in the United States. He is determined to remain in school. "I've made a commitment," he says. "I believe what I am doing is very important. We have to teach our young people enough technology so they can make decisions about it. If they don't make the right decisions in the next ten to 20 years, it'll be too late."

Although he is beginning to be discussed in national educational literature, Rye is still a very lonely prophet. "There is something terribly wrong about the way we underteach our children science and technology. We start much too late. I am always astonished at how receptive elementary schoolchildren are when my students demonstrate their projects. These first- and second-graders show infinitely more enthusiasm for technology than high-school students who, in turn, are far more interested in it than university students."

Walking his visitors to the car, this committed and yet strangely phlegmatic man suddenly becomes almost lyrical: "What gets me," he says, "is how easy it is to communicate to kids the love of science and technology. And yet how pitifully few of our kids go into these fields. What a waste it is they will never be able to know how to understand the world they see around them or experience what Socrates said was the most intense of human pleasures — the joy of knowing a thing well." ■

In the Age of the Smart Machine

Shoshana Zuboff introduces the term "infomate" to describe what happens when computer technology, applied to an organization or system, not only automates the work, but simultaneously generates information about the underlying productive and administrative processes through which an organization accomplishes its work.

This book covers three main dilemmas. The first is the conception and distribution of information in the workplace: will it reduce the need for human intelligence or enhance the ability of all workers to make intelligent decisions? The second involves authority: will the free flow of information eliminate the need for middle management, causing bureaucratic retrenchment by this embattled class, or will it help managers and workers overcome their narrow functional perspectives and create new roles better suited for value-added activities in a data-rich environment? The third dilemma regards techniques of authority: will information be used for surveillance and remote management, increasing isolation and antagonism between management and workers, or will information engender a deeper sense of collective responsibility and joint ownership, and preempt the dictates of hierarchical authority?

The most interesting chapters are the ones on life at the "data interface." Zuboff deftly avoids any discussion of how the technology itself can be used to resolve these dilemmas, but it's clear to me that user interface and system design can make the difference between a tool for oppression and a tool for freedom.

—Christopher Espinoza

In the Age of
the Smart Machine
Shoshana Zuboff
1988; 468 pp.
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($21.45 postpaid) from:
Basic Books, Inc.
Rt. 3 Box 20
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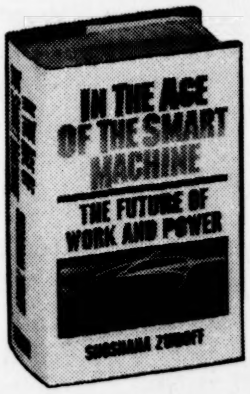

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The most striking feature of the operators' behavior was the dependency they had developed on the computer system. Because of the relative simplicity of automating this part of the pulping process, the digesting module was the first in the [wood-processing] plant to have a high level of computer control in the early 1970s. By 1982, there was wide agreement that it had become impossible to achieve a high-quality cook without the computer system. Management purchased an expensive backup computer when a systems failure revealed that the operators had lost their manual cooking skills. The operators freely admitted their dependency.

> We would be lost without the screen. Sometimes when it goes down, we sit and stare at it; we don't know what to do, we just sit and stare. Our job now really is to observe the screen. You may not be thinking exactly, but you sure have to pay attention.
>
> Before I started working in the control room, I would walk through here and think that everyone was crazy because they were just sitting in here and all day long staring up at the screen. Now I do the same.

With this new dependency, the operators discovered some new rewards. They learned that they could relinquish responsibility for the quality of the product that they make.

Working Knowledge

Meet Willie, all-purpose mechanic, proprietor of a modest repair garage in upper New York State. He fixes Saabs, farm machinery and just about anything else you might need fixed. He's a member of a fast-disappearing breed.

This loving portrait is also a sharp look at how our work ethic is changing as employment is increasingly disconnected from the social fabric of our lives. I've never seen this melancholy matter addressed so well or so truly. There is no trace of glib romance; the stark realities of a difficult but rewarding way of life are shown just as they are, with humor, dignity and grace. *—J. Baldwin*

Working
Knowledge
Douglas Harper
1987; 214 pp.
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of Chicago Press
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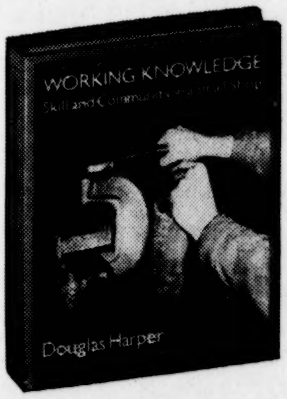

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This is work done for neighbors. It is not enough to live within ten or fifteen miles; to be neighbor to Willie you have to behave in a way that is routine in the shop but sometimes mysterious to outsiders. A person becomes a neighbor by passing informal tests, but you generally don't know what the tests are or whether you have passed until the time comes to ask for help. You become a neighbor by paying back, but the payment is seldom in kind. It is not that Willie will call and ask for help in the woods or on a project that needs an extra hand, though if you happen to be there when help is needed you will be expected (if you have the time) to lend that hand. The issue rather is whether you take the time for the small deeds; whether you put yourself in Willie's shoes and sense when a small social or physical contribution is needed. But you don't know if you are a neighbor until that moment when you are really in need. An exorbitant offer of money or a promise to do better next time you have a chance to repay a favor will not bring Willie out into the cold night. When you ask for help the chips are cashed in. If you have paid your dues — if you are a *neighbor* — Willie will come, and he will stay until the problem is solved. For these jobs often no money is exchanged. The most important work, ironically, is not sold but given.

The Mondragon Cooperatives

A region in Spain revived by an economy of 173 cooperatively owned businesses.

BY JAQUES AND RUTH KASWAN

Lankide

A Mondragon cooperative business manufacturing heating components.

Promoting cooperatives in the entrepreneuring eighties is a pretty lonely business. Co-ops are sort of earnest and plodding and socially complicated. After you scrape off all the starry-eyed idealism stuck to cooperatives, a not-very-glamorous, yet still practical utility remains. Jaques and Ruth Kaswan patiently distribute educational programs on cooperative economic development, including a story similar to the following on video, from Alternative Center, 2375 Shattuck Avenue, Berkeley, CA 94704 (415/644-8336). They also promote cooperative housing schemes, another unfashionable idea that seems to work everywhere except in the States.

—Kevin Kelly

COOPERATIVES have been around for about about 150 years, ever since the industrial revolution began to urbanize the western world. Craftspeople set up common warehouses to compete more effectively with manufactured goods, and workers subject to miserable working conditions and the whims of employers formed unions not only to fight for better conditions, but often also to set up their own stores and workshops, like the famous Pioneers of Rochdale. In fact, much of the labor union movement in the United States saw the establishment of a cooperative commonwealth as a major goal until the 1890s, when most unions decided to fight instead for the best deal they could get within the employer-employee system.

Still, cooperatives have continued and sometimes flourished in many parts of the world, operating according to social and economic principles that differ fundamentally from those of the mainstream. A key *social* principle of cooperatives is that those involved and affected by a business, usually workers and consumers, make the important decisions, so that democracy is brought to the workplace. By contrast, important decisions in private or state capitalist systems are made by those who control investment capital. A basic cooperative *economic* principle is that ownership and rights to profit are earned by work or other active partici-

pation in an enterprise. In capitalistic systems, those who provide the capital own the business and get the profits. Capital is necessary for any enterprise, but while capitalists rent labor and earn profits, cooperatives rent capital and the members earn profits through their participation.

The cooperative movement has grown a great deal during the last few decades in western Europe, where about 60 million people are participating in some form of voluntary cooperative — worker, housing, consumer or other types. Where cooperatives are most successful, they are part of associations that provide technical, financial, political and social support to their member organizations, as in France, Italy and Germany.

The most spectacularly successful cooperative system anywhere evolved over the last 30 years in Mondragon, a small provincial Basque town in northern Spain. Though their achievements are closely related to local conditions, the performance of these cooperatives is instructive for others because the challenges they face, like balancing democratic decision-making with productive efficiency, or more mundane problems like financing, planning, or relating principles to practice, are similar to the challenges faced by cooperatives everywhere. What works for them may not work for us, but just as they borrow ideas from others, so we might try to learn from them.

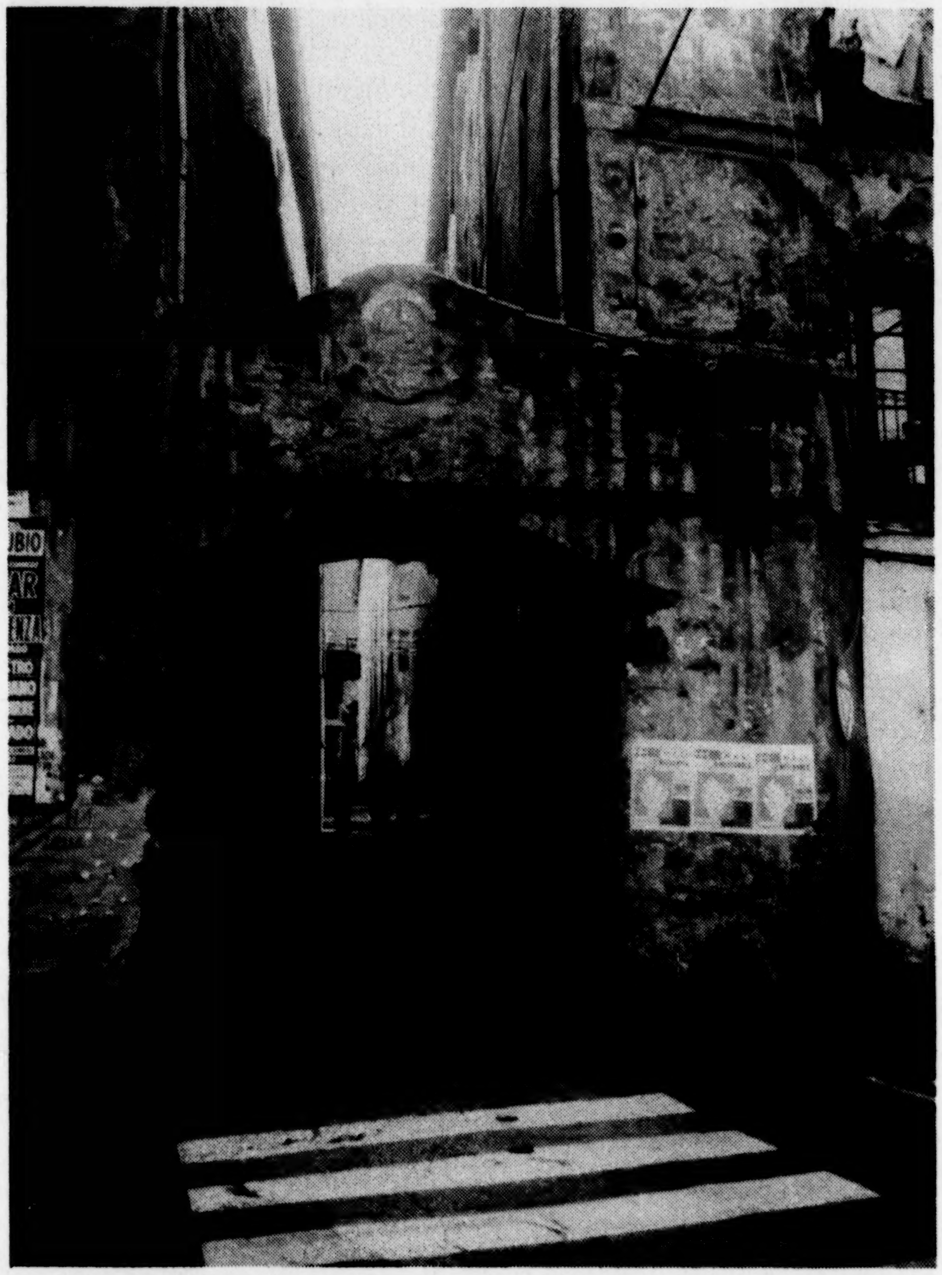
Today, Mondragon is a town of about 25,000 people. Two narrow, winding mountain roads connect it to larger cities and to major highways and railroads. In the middle ages it was known for the fine steel of its swords, and it has remained a small industrial center all along. Economically devastated by the Spanish civil war in the late 1930s, and demoralized by dictatorship, Mondragon had about 8,000 inhabitants in the early 1940s, with only one small factory as the major employer — an unlikely candidate for extensive industrial development, let alone the creation of a system that embodied ideals subversive of the prevailing power.

What happened in Mondragon is revolutionary. We usually think of revolutions as violent upheavals that destroy the old order and, often, many people along with it. But the revolution that came to Mondragon was peaceful and constructive. It was inspired by a pragmatic, gentle, visionary priest. The young Padre Jose Maria Arizmendiarrieta (usually shortened to Arizmendi) was sent to Mondragon in 1941 to educate young people. He passionately believed in social justice and was convinced that it could be achieved only if workers owned and operated their workplaces democratically, in solidarity with the larger community. Shortly after he arrived, he proposed that "the ideal of the youth of Mondragon should be to make this town the model of the industrial towns of Guipuzcoa [province]." But, he emphasized, "the economic revolution will be moral, or it will not be at all. The moral revolution will be economic, or it will not be at all."

Kaswan

The town of Mondragon in the Basque region of northwestern Spain. It's more extensive than it seems here.

Arizmendi spent his first 15 years in Mondragon preaching his dream wherever he could, and also saw to it that his young students received the best possible technical education. In 1956, five of them, graduate engineers by then, bought a small stove factory with money borrowed from people in the community. Now, thirty years later, the "Mondragon Experiment," as it is often called, is a comprehensive socio-economic system, a major factor in the regional economy. Its 173 member cooperatives, spread over four Basque provinces, include almost 20,000 workers. They range in size from as few as eight to 2,000 workers in individual enterprises, with an average of 100 per cooperative. About half of the cooperatives are industrial enterprises, including Spain's largest manufacturer of stoves and refrigerators, one of Spain's major machine tool producers, and a wide variety of industrial, electronic and state-of-the-art technological enterprises. Other member enterprises cover virtually every field, with agricultural, construction, housing, educational, consumer and service cooperatives. The latter include Spain's fastest-growing bank, with about one billion dollars in assets, one of the largest chains of consumer stores in Spain, a social insurance and health service cooperative, and a technological research center. In 1985 these enterprises — not counting the bank — transacted over a billion dollars' worth of business. That may not be much by the standards of international conglomerates, but it is very big by local standards. And independent economic analyses show that Mondragon's cooperatives are among the most efficient, productive and profitable enterprises in Spain, if not in Europe. Spain's economic recession has slowed their growth in the 1980s, but even so, while there was over 20 percent unemployment in the region, they added 366 new jobs in 1985.


Kaswan

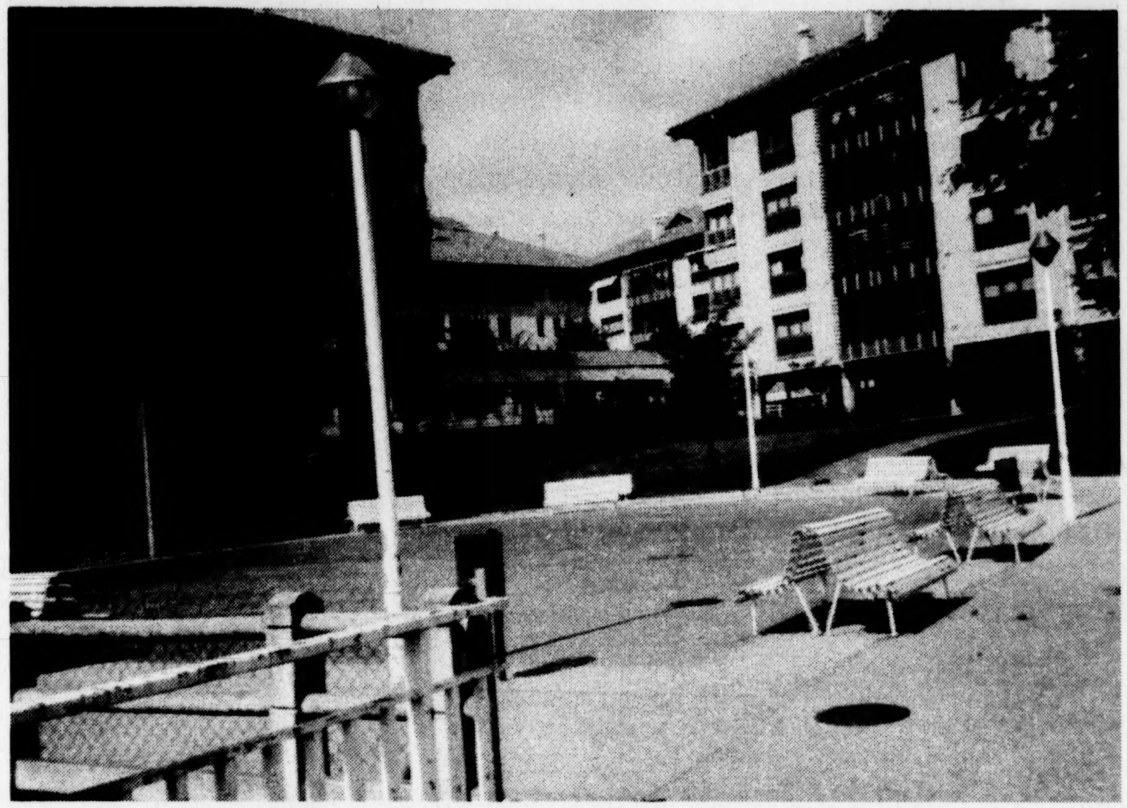
Main gate to the old section of Mondragon, a town of 25,000 now.

AS ONE ENTERS the outskirts of Mondragon from the west, the first thing in view is a large complex of industrial cooperatives. These include ULGOR, the founding cooperative, which is a major producer of refrigerators, washing machines, stoves and dishwashers. There is FAGOR Electrotechnica, whose products include TV tuners, diodes and rectifiers, and FAGOR Clima, which manufactures water heaters, heat pumps and boilers. Another big cooperative in this group is Arrasate, whose output includes both heavy manufacturing equipment like high-speed presses, electromechanical machinery, and household appliances.

The center of the city reflects its medieval past, with narrow streets, old two- and three-story buildings, and small shops. On afternoons, and especially on Sundays, the streets and squares fill with people who stroll around, stop to talk with each other, or enjoy impromptu entertainment as, for instance, children dancing to the music of a band playing in the old city's main plaza. The rest of the town meanders along two valleys between steep hills. Largely built or rebuilt during the last forty years, it contains larger businesses, some office towers and many blocks of apartment houses — including some highrises — since few people live in individual homes. Most of the apartment houses look as dull and unattractive as public housing does in most places — with the exception of housing built by cooperatives which are part of the Mondragon system. These buildings provide a pleasant outdoor environment in a parklike setting with nicely landscaped courts, benches, and playgrounds, and architecture more interesting than most of the other apartment houses in Mondragon. On the ground floor, along the main street, there are neighborhood stores, one of which is a cooperative furniture store and another a cooperative market.

On one of the hills overlooking the city are some of the key service cooperatives of the system. Their

Mondragon co-op housing. An earlier high-rise style was discarded in favor of lower, grouped apartments.


Kaswan

modern buildings are nestled into the landscaped hill, and the whole complex looks a little like an American college campus. This cooperative park is the headquarters of the Caja Laboral Popular (the Working People's Bank), which provides the bulk of the financial and technical resources for the system.

The main offices of the bank, built into the hillside, rise like a set of giant steps up the steep slope. Next to the bank is the central computer center which also serves as the main data-processing center for the cooperatives. Then there is Ikerlan, an industrial research cooperative which does applied research specializing in robotics, microelectronics and computer-assisted design, and which contracts with cooperatives associated with the system as well as with regional government agencies and private firms. Additionally there is Lagun-Aro, a cooperative that manages the pension funds for associated member groups and has a large industrial-medicine department that studies worker safety and health and helps associated cooperatives develop programs to reduce health risks.

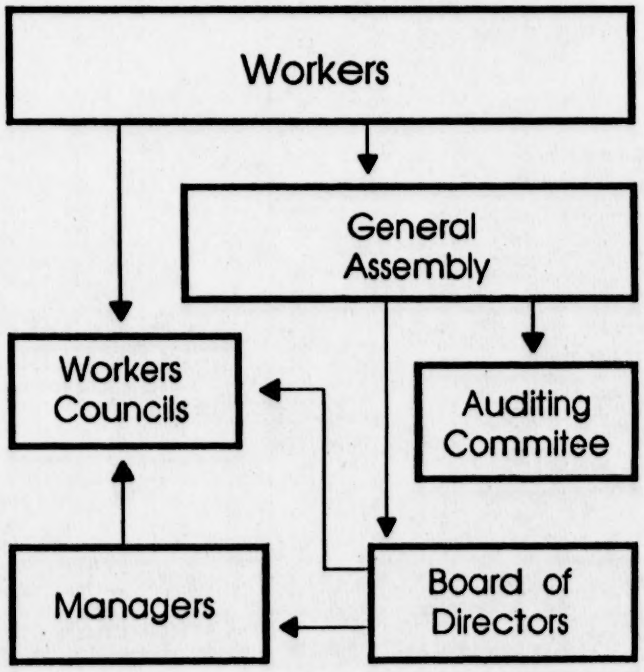
Let's take a look at how a typical Mondragon cooperative is organized (Figure 1).

All workers belong to the General Assembly, which is the ultimate decision-making body of the cooperative. They generally meet once or twice a year to decide on major policy matters like the election of members to the board of directors and the auditing committee, the annual budget, membership rules, and overall production targets.

Like boards of directors elsewhere, this body selects top management and sets operational policy in line with guidelines set by the General Assembly. They meet at least monthly to review and coordinate operations. Management attends but cannot vote.

The auditing committee is a three-member group which reviews all activities of the cooperative to make sure that everything is being done properly. It may call on experts from the bank or elsewhere for assistance. Problems the group identifies are expected to be resolved by those responsible. If all else fails, the auditing committee can call a special meeting of the General Assembly.

Management may be a person or a team. They are appointed by the board for four-year terms. Managers are members of the cooperative and have full administrative authority over the conduct



of the business, buying, selling, work assignments, and the like, subject to policies determined by the assembly and the board. Provided management follows these policies, they cannot be dismissed except for serious malfeasance, subject to a vote of both the board and a special meeting of the assembly.

One of the most innovative and important elements of the Mondragon cooperatives is the *Consejo Social* — the workers' council. All workers supposedly meet monthly, or more often, in small groups in their shop or office, and representatives from each group meet quarterly. These councils function in many ways like unions, except that they are part of a collaborative, rather than adversary, framework. Though the board has final power and management usually has authority to deal with personnel matters, a wide range of issues is discussed in these councils, including wage levels, working conditions, safety, problems with individuals, the contributions to be made to the larger community, and policy issues affecting the cooperative. Everyone, including members of the board, is expected to attend meetings of the workers' council. These councils' concerns and proposals often carry a lot of weight, and they therefore function as a key information exchange and mutual influence area.

Where consumers are served directly, as in Eroski, the chain of consumer stores, they participate in governing the cooperative. Among the 98 stores owned by the Eroski chain are some giant ones, the size of American K-Marts. In addition, they supply 166 franchise stores, most within a 60-mile radius of Mondragon. The stores sell not only a full line of foods, but also clothes, shoes, appliances and virtually anything else needed by consumers, with much of the merchandise produced by associated cooperatives. They operate their own food and durable-goods warehouses, freezer plant, meat slaughtering and packaging plant, fruit and vegetable depot. They package many products under generic labels or their own labels, with some of the packing materials produced in a plant of their own. Their quality control laboratories test hundreds of products each year to assure top quality. Though consumer spending in the area has been decreasing because of economic hard times, Eroski sales have been increasing, enabling them to expand a great deal in the last few years. Their 1985 sales amounted to about $208 million, with net income of 3.82 percent, cash assets of about $24 million and virtually no debts. This achievement is particularly notable in view of the generally poor economic performance of consumer cooperatives in most parts of the world.

One reason for Eroski's success may be their effective involvement of both workers and consumers in their governing structure. Consumers can become members by paying a fee of less than one dollar — there are about 130,000 of them. Every year, the consumer members meet in congresses in four regions to elect 250 members of the General Assembly. Then the workers meet in a congress to elect their 250 representatives. The assembly then functions like other cooperative assemblies, electing a board of directors which includes six consumers and six workers. The president is always a consumer, the vice president a worker.

Lankide

Inside the Eroski supermarket, the largest cooperative store in Spain.

Incoming members in any cooperative must pay in a substantial amount (usually about a year's income drawn by the lowest-paid worker), in cash or as deductions from their salary over as long as two years. This payment is a statement of commitment to the cooperative. It is deposited to the member's account but is not related to the distribution of profits.

Payment received for work is actually considered not a wage but an advance on the member's share of returns. For the most part, the highest payment for work may not be more than three times the lowest, although some extra income (up to about four and a half times the lowest amount) may be allowed to managers and some others who have exceptional responsibilities and who may work much more than the normal amount of time. The average entry-level "wage" is close to the regional average. The share of profit a member is entitled to is calculated on the basis of work done. Each worker's share of surplus also goes into the worker's account, where it earns interest which cannot be withdrawn until the worker retires or leaves and may be used to help make up deficits in the case of losses. In addition, each worker is entitled to a pension upon retirement. The cooperatives generally put about half of their net surplus into reserves, 40 percent goes to workers' accounts, and 10 percent goes to support the community — much of it for cooperative and technical education, as well as schools that teach Basque language and culture.

Most of the individual cooperatives belong to groupings of from four to twelve member cooperatives. These often share personnel, marketing and other services and pool their surpluses so that the stronger cooperatives support the weaker ones. Because of this mutual support and the financial and technical assistance from the entrepreneurial group, failure is virtually impossible. When layoffs are necessary individuals are shifted to other cooperatives or supported at 80 percent of their salary until they are reemployed.

Since the bank plays a critical role in the operation of the system, let's look at it more closely. The banking division serves 164 branches, with half a million depositors and over a billion dollars in deposits in 1985. Its deposits from individual clients provide the bulk of the loan capital used for the development of new enterprises and the expansion and modernization of existing ones. Other substantial sources of capital are the surplus accounts of the members of the individual cooperatives, as well as the associated cooperatives' reserve and other accounts. The bank's main income comes, of course, from interest earned on loans to member cooperatives and other depositors. The bank's profits tend to be larger than those of other cooperatives, but its staff's shares of the surplus are limited to the average earned by all associated cooperatives. Much of the surplus is used to subsidize the planning and development of new cooperatives and to provide substantial interest reductions to them and to cooperatives in difficulties. For instance, new cooperatives are initially charged 8 percent interest on capital instead of the more usual 13 percent a year.

Much of the growth and vitality of the Mondragon system depends on the role of the bank's entrepreneurial division, which became a separate

Lankide

Banks, even large ones like this Caja Laboral with 214 billion pesetas in holdings, can be cooperatively run.

cooperative as part of the system's ongoing reorganization. One of the main functions of the entrepreneurial group is to develop new cooperatives. When a group comes to them wanting to start a cooperative, basic screening criteria are that the starting members know and trust each other, commit themselves to cooperative principles, have some skills to start a business, and want to participate in the often lengthy development process.

If these conditions are met, the prospective co-op members must select one of their group as manager. The manager then works full time with an experienced staff person from the entrepreneurial group. First, they embark on a detailed feasibility study that includes consideration of available markets, the ecological impact of the enterprise and, most importantly, the likelihood that the enterprise would provide a significant number of new jobs — at least forty jobs within five years. If the prospects look promising, they will prepare a business plan and present it to the bank and to the prospective members of the cooperative. If approved, the bank provides the necessary capital, the group formally organizes itself as a cooperative and the members commit their share of the investment. They then begin the actual development of the business. Half of the groups that start this development process complete it; half don't make it.

But once established, the monitoring, technical and financial support arrangements available to cooperatives (mainly through the entrepreneurial group) provide a virtual guarantee against later failure. As long as a cooperative is a member of the association, the bank will help it through losses due to changes in market conditions or other reparable problems, provided the enterprise has commited members willing and able to work cooperatively in a businesslike way. Partly as a result, there have been no failures over the last 30 years, except for a group of fishing cooperatives which were financed and organized with the help of government agencies and were therefore not developed according to the Mondragon Association's usual procedures.

Placing people before all else is not only consistent with cooperative principles, but it also seems to be good for business, for the bank is financially very strong, with large reserves and plenty of money to lend.

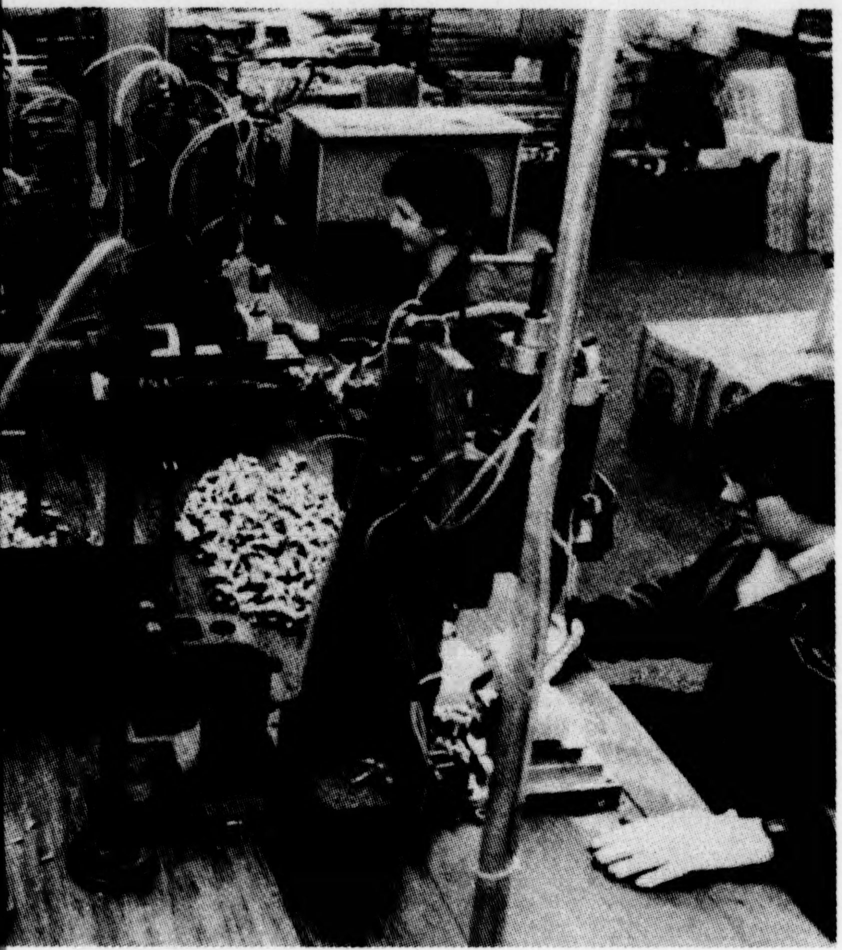
Most impressive in Mondragon is the dynamic quality of the system, the zest and thoughtfulness with which its members tackle problems. After 30 years most large systems get stuck in ruts and rot, rarely analyze themselves critically, and are most concerned with protecting the status and power positions of elites. What one sees in Mondragon are people who continuously analyze their performance and try to improve it.

A cooperatively run factory still has many of the workplace disadvantages that all assembly lines do.

Lankide

During the last few years, for instance, the whole system has been undergoing a major reorganization. Before, the entire complex was linked by contracts with the *caja.* The *caja's* board of directors, in turn, consisted mainly of representatives of member cooperatives which thereby exerted considerable control over the *caja.* At the same time the *caja,* through its loans, was already holding much of the purse strings over the member cooperatives. In order to give member cooperatives more responsibility and authority for the coordination of the system, the *caja,* in 1984, proposed the creation of a Congress of Cooperatives, grouped along geographic lines, of which the *caja* is just another member. To further diffuse the power of the *caja,* the entrepreneurial division was split off from it and turned into a separate cooperative.

Still, working in a cooperative factory is not all that different from working anywhere else. A visit to Copreci, for instance, reveals a large plant with about 900 workers operating all kinds of equipment, much of it automated, and turning out masses of components like gas taps, switches, thermostats and the like. Attending to some of the equipment undoubtedly requires a good deal of skill, but other jobs seem outright boring, and it's a noisy environment, not at all like the fine offices of the bank. In many cases — not neces-



sarily in this plant — the cooperatives have found it difficult to involve line workers in the governance of the cooperatives.

A still-ongoing study of participation in the social councils of the FAGOR group of cooperatives shows, not surprisingly, that in the cooperatives at some distance from Mondragon there is much less participation in meetings by workers on the factory floor than by the generally better-educated white-collar workers. In some cooperatives, workers' attitudes were described as being as alienated from their enterprise as those in traditional private businesses, seeing the governing bodies, management and office workers as distant, elite authority.

Several reasons were advanced for these problems. One is that work in many of the larger old factories was set up on assembly lines or in other traditional arrangements, where most workers must follow dull, repetitive routines in isolation from one another. Over the years, several of the enterprises have set up work teams that have responsibility over a series of tasks and considerable freedom to decide how to accomplish them, adapting models of industrial democracy pioneered in the Scandinavian countries. More and more, workers are also being asked to participate in shop-floor groups that provide input on the organization and coordination of work in the enterprise. Versions of such participatory work arrangements are now being instituted in many cooperatives.

A second handicap to democratic worker participation noted by some of those with whom we talked relates to the hierarchic management model that has been used by the management councils (MCs). In this model, workers determine policy in their general assembly and can, at least in principle, influence operations through the board of directors and the social council, but managers are given full operational authority. Consequently, managers and other administrators often act, or are perceived, as authoritarian elites, and such conditions discourage the upward flow of information or participation by workers outside their own narrow jobs. The reorganization of many work settings into shop-floor industrial democracies is expected to contribute to a shift toward more democratic management styles where managers serve more as facilitating leaders, coordinators and resources than as the source of all operational authority. Though many managers are reported to support these changes, there is also resistance. The expansion of management training programs is expected to assist managers in this transition.

A third difficulty hampering more worker participation is the recognition that both the board of directors and the social council are representative rather than participatory bodies. Though there are supposed to be periodic shop-floor meetings organized by members of the social council to encourage input from all workers, the main participative function of workers in many of the enterprises is to vote for board and social council representatives. Particularly when combined with authoritarian management, such arrangements obviously discourage much worker involvement, especially in the larger cooperatives. As work settings and management become more democratized, participation in governance will also change, though this change may take varied forms in different cooperatives.

Though the problem of promoting both high member participation and productive efficiency is a universal one for all democratic organizations, solutions must fit each particular cultural context. An understanding of the MCs therefore requires some perspective on their cultural adaptations. Perceptions of social organizations by outsiders are always distorted by the oberver's own background, especially when, as in our case, there is little first-hand knowledge. Accordingly, the observations which follow are more like trial balloons than conclusions.

One of the guiding principles of the MCs is that of solidarity: *all* acts must, *at the same time,* benefit and respect the needs and concerns of everyone affected — individuals, their cooperative, other cooperatives in the system, and the larger community. This principle is consistent with the Basques' pride in their culture, their communities, and their close-knit nuclear and extended families. Though there may be intense conflict in a community, the most unforgivable insult is to degrade the honor of a person, a family or a community. This sense of solidarity can be illustrated with an actual case. A cashier was caught stealing in one of the Eroski stores, and the question for the social council was what to do about her. To call the police or to just fire her was simply out of the question, for to do so would bring dishonor and disrespect not only to the culprit, but also to her family and the community. The principle of solidarity that is central to the MCs is therefore an adaptation of a cultural norm, not an invention of the cooperatives.

Solidarity and related values also have a number of implications for decision-making and democratic participation. Though Basques have fought for their cultural and local independence since antiquity and have a strong tradition respecting individual political freedom, social relations seem to occur primarily on two levels. One is a paternalistic family- and clan-oriented pattern where, as noted above, gender and generational roles follow traditional role models. Efforts to equalize opportunities for advancement began to change these patterns for many younger people and for women from the early 1970s. The other pattern is one of social encounters that regularly take place in public places, like drinking clubs, where many workers go after work, talking about issues that concern them, apparently without status or class distinction. In these settings managers who may be authoritarian at work may freely mix with workers. Similarly, the shops and streets of the town, bustling with people, offer arenas where people interact with one another to pass the time and to discuss the affairs that concern them, crossing clan, family and class lines and inevitably reinforcing norms that shape individual decisions and maintain solidarity, no matter how intense the debates may be.

Several of the people with whom we talked suggested that a critical factor that maintains solidarity both in the cooperatives and in the culture is a sort of consensus process. There seem to be three seemingly incompatible social processes which nevertheless work to maintain a reasonably coherent and satisfying community life. One is a high level of respect for each person's freedom to shape their life as they see fit, and high respect for individual dignity. Another process is that the Basques argue often and vigorously. The third is the generally paternalistic structure of the family. What seems to happen with controversial topics that need to be decided if the cooperatives are to function smoothly and democratically, is a lot of informal discussion in more or less formal meetings in or out of the social council. No group recommendations are likely to be made to the board of directors until proponents of diverse perspectives have had their say and are willing to go along, even if reluctantly, with a course of action. What seems important is not so much that everyone wins, but that no one is treated as a loser, as long as they play by the largely unwritten rules. By the time something comes up for a vote there has therefore generally been an informal agreement. Accordingly, boards of directors are unlikely to reject recommendations. If they do, or if there is reliance on majority voting as the primary means of deciding on policies, then the system is likely to be seen as not working well. Once decisions are made, the operational hierarchy supposedly provides the technical direction for implementation and all participants are expected to fall in line as disciplined "troops." Accordingly, though the organizational structure of the cooperatives emphasizes formal majority voting as the primary decision-making avenue, the partly informal process of reaching consensus seems to be an essential, culturally rooted mechanism through which solutions evolve.

If this analysis has merit, then a key to increasing participation and communication in the MCs may be to develop, in addition to work teams and more democratic management structure, more opportunities for partly informal get-togethers on the shop floor. In these as in the drinking clubs, members could find out what is going on at different levels of the organization, discuss what is going on at work, consider how they could do things better, and send suggestions up along the organizational ladder which must be so organized as to explicitly recognize and make use of the input. The FAGOR discussion groups used to evolve the revision of their rules seem to have been something like this.

WHAT MAKES THE MONDRAGON cooperatives so successful? Was it the unique leadership of Father Arizmendi? the cultural history of the Basques, which stresses solidarity, hard work and self-reliance? luck in that when they started, in the late 1950s, Spain was entering a period of economic growth? All of these factors played a role. But we believe that the main reasons for their success is the organizational effectiveness with which they addressed most of the issues all cooperatives must deal with.

It would be foolish to try to transplant the Mondragon system elsewhere, because particular organizational structures, techniques and solutions have to be adapted to each culture. But their success helps us identify what we need to focus on if we want to develop a strong cooperative movement here.

To begin with, cooperatives must be clear as to the reasons for their existence. The Mondragon Experiment demonstrates, as do many other cooperatives, that the application of the fundamental principles of cooperativism can lead to economic and social results that are superior to other alternatives. One of these principles is democracy in the workplace. A second key principle is what economists call "usufruct" ownership, where ownership rights are gained by active participation, like work in an enterprise, not by the provision of capital. Thirdly, success requires participants who are very good at their work, whether management, engineering, or anything else. Fourth, planning, continuous monitoring of individual cooperatives and of the system, and willingness to change are essential for survival. Fifth, a strong financial resource, which is part of the system, seems very important. It is unlikely that these cooperatives would have gotten very far without the bank's capital and technical resources. Outside banks, like a national cooperative bank, may also be useful, but when financial resources are not intimately connected with a regional system, their impact is scattered and rarely encourages the integrated support that seems to have been a key factor in Mondragon's success. Sixth, cooperatives are likely to become economically and socially significant segments of society *only* if they are organized as coordinated mutual support systems that operate as part of local and regional associations through which new and existing cooperatives can be assured of continuing technical, educational, marketing and other support. Finally, and perhaps most importantly, Mondragon demonstrates that large-scale success for cooperatives requires that they function on the basis of solidarity with people in their community.

Padre Jose Arizmendi, founding organizer of the Mondragon experiment.

If we are to be successful in developing a significant cooperative system this means that we must translate our culture's forms of solidarity and democracy — as exemplified by the volunteerism of interest and neighborhood groups — into concepts, practices and incentives that will be attractive to the general public.

The potential importance of cooperative systems goes beyond economic matters. The prevailing socio-economic system has led to the dismemberment of family and community, to the erosion of public and private morality, enormously high rates of violence, and to a sense of alienation and loneliness felt by more and more people. Also, as individuals become less able to influence their surroundings, ideals of democracy become hollow rhetoric. Cooperative systems offer a realistic alternative. In such systems, people must make joint decisions and depend on one another in their daily activities. In this process, they can influence their social environment and be supported by it. Such interdependencies are the essence of community and can provide the basis for a society which can reestablish the democratic connectedness and concern for the common good which we seem to have lost.

Mondragon and others elsewhere have shown that cooperative systems can be economically and socially successful where there are people with vision, energy, competence and commitment. The people of Mondragon are building a decent future for their children. Are we? ■

Suggested Reading

William Foote Whyte and Kathleen King Whyte, *Making Mondragon: The Growth and Dynamics of the Worker Cooperative Complex* (1988. $16.95 postpaid from ILR Press, Cornell University, Ithaca, NY 14851-0952; 607/255-3061). Excellent description of the dynamics of the system's development and present operation.

Henk Thomas and Chris Logan, *Mondragon: An Economic Analysis* (1982. $17.95 postpaid from George Allen & Unwin, 8 Winchester Place, Winchester, MA 01890; 800/547-8889). Very good analyses of economic performance. A bit dry, but clear and objective.

Jaques Kaswan, *Cooperative Democracy.* Available in manuscript form from the author (1740 Walnut Street, Berkeley, CA 94709, $15 postpaid); hopefully to be published in early 1989. Uses the Mondragon cooperatives as a major example for a social and economic analysis of cooperative concepts and practice and proposes a viable cooperative system.

Jaques and Ruth Kaswan, "The Mondragon Cooperatives 1986." 45-minute VCR video of the place, the setting, the installations, plus flow charts and explanations of the organization and operations of the system. Includes text of script. $55 prepaid from The Alternatives Center, 2375 Shattuck Ave., Berkeley, CA 94704.

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Informational meetings on cooperatives are held periodically in the San Francisco Bay area. Write to The Alternatives Center at the above address if you want to be notified.

Peopleware

Say you wanted to storm the world. Everything I've seen proves you could do it with one highly productive team of people. This incredibly profound book tells how to organize a team project, set up a workplace that jells the group (lots of windows and community rooms), and aim management at keeping the team nourished and free of obstacles. Work smarter, not harder, it repeats. An immensely wise book, worth proselytizing to others.
—Kevin Kelly
[Suggested by Bruce Baumgart]

Peopleware
Tom DeMarco
and Timothy Lister
1987; 188 pp.
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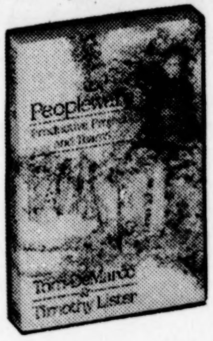
postpaid from:
Dorset House Publishing
353 W. 12th Street
New York, NY 10014
800/342-6657
or Whole Earth Access



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Encourage people to make some errors. You do this by asking your folks on occasion what dead-end roads they've been down, and by making sure they understand that "none" is not the best answer. When people blow it, they should be congratulated — that's part of what they're being paid for.

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I was teaching an in-house design course some years ago, when one of the upper managers buttonholed me to request that I assess some of the people in the course (his project staff). He was particularly curious about one woman. It was obvious he had his doubts about her: "I don't quite see what she adds to a project — she's not a great developer or tester or much of anything." With a little investigation, I turned up this intriguing fact: During her twelve years at the company, the woman in question had never worked on a project that had been anything other than a huge success. It wasn't obvious what she was adding, but projects always succeeded when she was around. After watching her in class for a week and talking to some of her co-workers, I came to the conclusion that she was a superb *catalyst*. Teams naturally jelled better when she was there. She helped people communicate with each other and get along. Projects were more fun when she was part of them. When I tried to explain this idea to the manager, I struck out. He just didn't recognize the role of catalyst as essential to a project.

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There Ain't No Such Thing As Overtime
Overtime for salaried workers is a figment of the naive manager's imagination. Oh, there might be some benefit in a few extra hours worked on Saturday to meet a Monday deadline, but that's almost always followed by an equal period of compensatory "undertime" while the workers catch up with their lives. Throughout the effort there will be more or less an hour of undertime for every hour of overtime. The trade-off might work to your advantage for the short term, but for the long term it will cancel out. . . .

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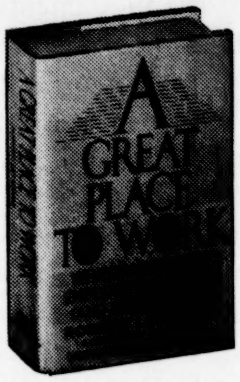
We are trained to accept windowless office space as inevitable. The company would love for every one of us to have a window, we hear, but that just isn't realistic. Sure it is. There is a perfect proof that sufficient windows can be built into a space without excessive cost. The existence proof is the hotel, any hotel. You can't even imagine being shown a hotel room with no window. You wouldn't stand for it. (And this is for a space you're only going to sleep in.)

A Great Place to Work

*One of the authors of **The 100 Best Companies to Work For in America** (**EWEC**, p. 188) revisited the top twenty companies on his list to pry further into what set them apart from the run-of-the-mill employers. What he discovered was: a few progressive benefits do not a good workplace make. Instead, trust among employees was the common element. Each profiled company demonstrated this intangible, yet genuine, commitment to employee welfare in its own way. It did not hinge on any particular policy (or lack thereof): employee ownership, quality circles, flex time were all found in both lousy companies and great ones. And trust was not something that could be instituted once, but, as in marriage, had to be daily remade. There's no formula, but the test of a great place to work seems to be that everyone up and down the line, from the CEO to the janitor, feels like others trust them.* *—Kevin Kelly*

A Great Place to Work
Robert Levering
1988; 312 pp.
$18.95
postpaid from:
Random House
Attn.: Order Dept.
400 Hahn Road
Westminster, MD 21157
800/638-6460
or Whole Earth Access



•

Schmoozing — informally chatting with others — is an accepted part of everyday life at good places to work. The important part of that sentence is the word *accepted*. You don't need permission to do it. There is no sense of having to look over your shoulder to make sure the boss doesn't catch you talking to someone on company time.

•

It emerged that good employers give a lot of time, thought, and energy to developing a certain type of relationship with employees. Once I understood this point, I quickly recalled how often I'd heard employees of good workplaces talk about the quality of their relationships with their supervisors, the company, and even other employees. "Everybody gets along with each other around here" was one way this idea was often expressed. By "everybody" they clearly meant everybody, including management and employees.

•

Consider McDonald's, the world's biggest fast-food chain. McDonald's has consistently grown larger and more profitable over the past three decades. That's why it was cited repeatedly in *In Search of Excellence* and singled out as one of the dozen or so most admired of the forty-three excellent companies. Not only that, Peters and Waterman single out McDonald's as one of seven firms to profile in their chapter on people management. The authors quote a former McKinsey colleague: "'You know, one of the things that strikes me most about McDonald's is their people orientation. During the seven years I was at McKinsey, I never saw a client that seemed to care so much about its people.'"

You won't, however, hear such rave reviews of McDonald's by talking to those working behind the counters or in the kitchen — McDonald's entry-level employees, who often earn the minimum wage. They express their feelings about their employer by leaving it in droves. One hundred-percent-a year turnover rates are common at McDonald's restaurants throughout the land.

Janet Nagel sews at her home for Boston-based Rocking Horse clothing store for children. Photo courtesy of *The Salt Lake Tribune*.

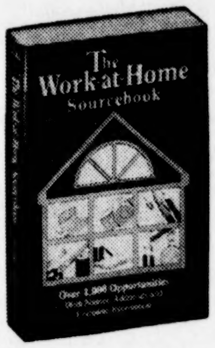
The Work-at-Home Sourcebook

Here are the names and addresses of 1,000 companies that use people working at home. Both kinds of work-at-home jobs — as employee or as self-employed freelancer — are included in this annotated listing. The drawbacks of home employment are made evident as one reads the "opportunities." Some employee-at-home jobs, such as piecework garment sewing, were once outlawed by unions as "sweatshop" work. Might have more advantages these days, might not. Same goes for keyboarding insurance forms from home. The self-employed jobs usually require all the business talent of a successful freelancer or consultant. A tough gig to maintain. This directory skips over the pros and cons of working at home. Instead, an eye-opening, I'd even say inspiring, variety of ways that someone is earning money at home is pointed to. It's up to you to transform a way of earning money into a way of earning a living.

—Kevin Kelly

ROCKING HORSE, 1265 West Illinois Avenue, Salt Lake City, UT 84104.
Positions: Sewing, knitting, and crafting of elite children's wear and heirlooms. Rocking Horse is a chain of children's stores based in Boston. There are four stores now and the company is rapidly expanding coast to coast. All sewing of children's apparel is done by home workers in Utah. Other items (cloth dolls, quilts, toys and heirlooms) can be done elsewhere only upon approval.
Requirements: Ability and proper machinery is required. Especially wants quilters and smockers. Knitters must have knitting machine.
Provisions: Patterns, supplies, and training are provided. Pays piece rates. "We have lots of work coming up. In addition to our established line, we are open to any new ideas. Be prepared to send samples."

The Work-at-Home Sourcebook
Lynie Arden
1988; 219 pp.
$12.95
($14.95 postpaid) from:
Live Oak Publications
P. O. Box 297
Boulder, CO 80306
303/447-1087
or Whole Earth Access

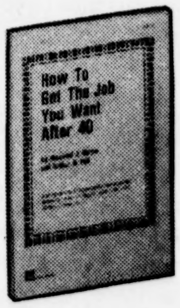


How to Get the Job You Want After 40

Perish the thought, right? Statistics, however, aver that you may well have to face the uneasy task of starting again at a time in your life when you don't want to, under pressure from the landlord or the bank, and not being real sure of how to go about it any more. Hard to think of an uneasier situation. Paralysis is common, as is ineffective, frantic scurrying. Fret not. This book will get you started finding that new position. The advice is succinct, upbeat (without being chirpy) and experienced, with special attention given to the problems and prejudices attending the, uh, mature job-seeker. Hope I never have to use it.

—J. Baldwin

How to Get the Job You Want After 40
Maxwell J. Harper
and Arthur R. Pell
1988; 80 pp.
$4.95
($5.95 postpaid) from:
Pilot Books
103 Cooper Street
Babylon, NY 11702
516/422-2225



or Whole Earth Access

•

If you decide to list your age, it is best to do so at the bottom part of your resume. *Give the reader a chance to see your excellent qualifications before he makes a decision based solely on age.*

•

For unemployed persons or persons openly seeking a job there is no problem involved in answering blind ads. The employed man seeking a position confidentially should exert great care. It could very well be his own company who is advertising.

•

Do not be embarrassed about being in the job market. Whether employed or not, it is no crime to be searching for a job. You are not seeking charity. Too many job seekers take a hat-in-hand approach. They feel ashamed to be asking for a job.

The Whole Work Catalog

Great idea! Round up all the best guides available on how to start up a specific business (typing service, travel agency, trucking, etc.), or how to enter a particular career (or non-career if you like). Include a few guides to creating rewarding work, a few on alternative careers, and offer them all by mail in one intelligent catalog. Better idea!: Send one of these catalogs to every kid in your local high school's senior class. *—Kevin Kelly*

The Whole Work Catalog
free from:

The New Careers Center
6003 N. 51st Street
P. O. Box 297-CT
Boulder, CO 80306
303/530-1087

Careers for Horse Lovers
by R. Trahan
292 pages, hardcover $16.95 No. 4301

Some 39 different horse-related careers are explored in this thorough, realistic guide. "There is no way a person with a true interest in a horse-related career can put this book aside . . . Ron writes with a fascinating flair that makes educational reading easy and interesting." —*Eastern/Western Quarter Horse Journal*

How to Earn $15 to $50 an Hour With a Pickup or Van
by Don Lilly
128 pages $12.95 No. 2467

If you're between careers or just don't want serious commitments for awhile, this little guide can show you how to make a decent living with only a battered old truck or van and a willingness to work hard. A side bonus is the treasures you can find while hauling away people's "junk" (the author was paid to haul away a late 19th century oil painting, for example, later appraised at $400). Lilly covers the topic in a straightforward, honest, very thorough manner, despite the book's amateurish cover and layout and slightly inflated price.

Time Out

The sabbatical, wherein one drops out of duties and into dreams, to return to duties rejuvenated, is a mark of civilization that is making a comeback. It's a sensible antidote for overachiever burnout. I was heartened to learn from this book that all kinds of individual deals can be negotiated, even with companies without official sabbatical policies. Design your own sabbatical, it says. It's backed up by testimonies from "them that's done it."

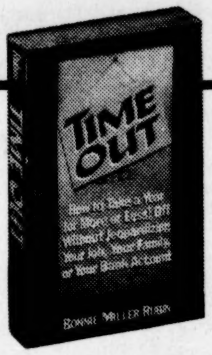
—Kevin Kelly

•

Clearly, you can get away with just about anything if you're good enough at what you do.

As much as we may want to believe otherwise, there is no democracy in the workplace. Who gets merit pay, vacations, corner offices, high-profile projects, parking places, and, indeed, personal leaves may have more to do with the studio star system than any tenets of the Constitution. Even unions cannot guarantee that perks are meted out equally.

Time Out
Bonnie Miller Rubin
1987; 236 pp.
$12.95
postpaid from:
W. W. Norton
500 5th Avenue
New York, NY 10110
212/354-5500
or Whole Earth Access



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What pushes your company's hot button? If it's voluntarism — which is held in high esteem at Control Data, Xerox, and Wells Fargo — perhaps you can work a volunteer stint into your leave. Other corporations have soft spots for education, the arts, or urban renewal.

•

Objection: Who will assume your responsibilities while you're away?

Response: Terry has superb organizational skills and played a big part in our bringing our last three projects in on time and under budget. I think it would be an excellent time to try her out as project manager. And, since her seniority is much less than mine, there'll be about a $6,000 savings in salary.

(Smart negotiating on several counts: 1) By having an alternate plan, you show the boss that his concerns are your concerns. 2) You readily give credit to a colleague, always a class act. 3) You point out any bottom-line benefits to the company.)

•

If your leave request is turned down, career consultants overwhelmingly favor severing relationships rather than carrying on voluntarily, like some spurned lover.

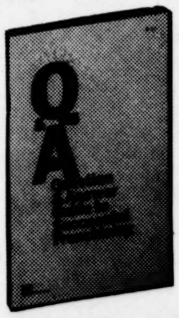
"If the answer is no, you'd better be prepared to submit your resignation, because it will be awkward for you and awkward for your company," said [author] Richard Bolles.

Franchising

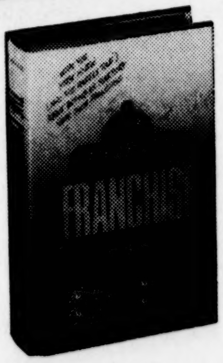
Owning a franchised business gets you the worst of a small business with few of its advantages: you do all the boss's hard work, yet you are not fully in charge. Worse, you don't earn much, usually far less than you would at a salaried job or as full owner. Yet the smallest half-measure of independence, and a very low failure rate, tempt many bored employees into the trade. Be forewarned. An inexpensive small booklet of questions and answers, ***Question & Answer Guide to Successful Franchising****, is the first caution, and all most people need. If you make it through that undampened,* ***The Complete Franchise Book****, an honest book, will properly orient you to the franchising universe which is entirely contractual, and a lawyer's paradise. If you hate other people's rules, invest in your own idea.*

—Kevin Kelly

Question & Answer Guide to Successful Franchising
1969, 1988; 31 pp.
$3.50
($4.50 postpaid) from:
Pilot Books
103 Cooper Street
Babylon, NY 11702



The Complete Franchise Book
Dennis L. Foster
1988; 249 pp.
$17.95
($19.95 postpaid) from:
Prima Publishing
& Communications
P. O. Box 1260LG
Rocklin, CA 95677
800/255-8989 ext. 504



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What general advice do you offer a person who has decided to purchase a franchise?

Investigate — Investigate — Investigate! Have a lawyer and accountant check every detail and figure. Make sure you, your attorney and accountant agree that 1) the parent company is reputable, 2) you're fully protected, 3) the location for the franchise is satisfactory, 4) your personal liability is limited, 5) you have sufficient funds, 6) the franchise fees and royalties are reasonable and offer the chance for good profit. Pretend you are a professor giving a tough exam and the franchising company is the student who must get an exceptionally good grade to pass that exam. *—Question & Answer Guide*

•

I am earning $35,000 a year. Have $45,000 in the bank but am bored with my job. Should I invest in a franchise?

Unless your investigation turns up an outstanding opportunity, stay put in your job. If your job offers the chance for advancement, if you can increase your savings and make prudent investments, you might be in better financial condition and have an easier life than if you invested in a franchise. *—Question & Answer Guide*

•

From the franchisor's point of view, the idea is to control your emotions. When they're on a sharp upturn, the franchise sales director will offer the contract for signing. The closing always takes place on an optimistic peak, never in a pessimistic valley.

As a prospective franchisee, you want to maintain an even keel to prevent the franchisor's marketing experts from controlling your emotions and guiding your buying behavior. Similarly, you must recognize that buyer's remorse is a natural part of any major investment decision.

Sales pressure from a franchise marketing staff can be extremely low key. You may not be pressured to sign; in fact, you may be discouraged. Again, this discouragement is part of the franchisor's reverse-selling strategy. The real aim is to take away the franchise so you'll scramble hurriedly to grab it back.

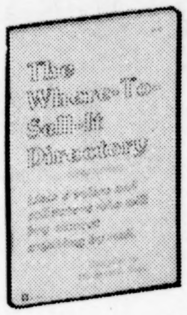
—The Complete Franchise Book

The Where-To-Sell-It Directory

Do you realize that you can get real money for bubblegum cards? This very eclectic compilation of who-buys-what is just what you need if your attic is about to burst and you think that a garage sale isn't appropriate. The listings are pretty specific: there's a man who buys Sterling fruit knives, another that buys spark plugs. Or how about lunch boxes? Or railroad timetables. Egad!

—J. Baldwin

The Where-To-Sell-It Directory
Margaret A. Boyd
1988; 63 pp.
$3.95
($4.95 postpaid) from:
Pilot Books
103 Cooper Street
Babylon, NY 11702
516/422-2225



ORIENTAL RUGS

KAREN HAYWARD, CAPTAIN HADLEY HOUSE, Marion, MA 02738
Send description, size, color picture if possible. Oriental rugs from: Persia, Turkey, China, India.

MARTIN YELLEN, 801 S. Western, Chicago, IL 60612
Send description. Oriental rugs—all sizes.

PAPER DOLLS

BARBARA BISGAARD, 356 Home St., Sycamore, IL 60178
Paper dolls, cut or uncut. Describe and price.

REV. MORRIS HAMASAKI, 1341 College View Dr., Monterey Park, CA 91754
Describe, state price wanted. Paper doll books, movie stars, Disney and comic characters.

ROCHELLE, Box 501, Farmington Hills, MI 48018
Describe. Celebrity paper dolls.

SPENCER, 5 Hunter, Joliet, IL 60432
Old advertising paper dolls wanted.

MARY YOUNG, 1040 Greenridge, Kettering, OH 45429
Paper dolls—any kind, cut or uncut.

PAPER ITEMS

(Also Check CELEBRITIES' ITEMS, DOLLS, STATE ITEMS)

PATRICK ALBANO, 740 DeMun Ave., Clayton, MO 63105
Color Chromolithographs by Thomas Moran of Rocky Mountain scenes printed by Prang.

GLEN ARONE, 377 Ashford, Dobbs Ferry, NY 10522
Timetables—railroad, trolley, steamboat. Train booklets, brochures, passes, etc.

RODNEY BATTLES, P.O. Box 485, Euless, TX 76039
Western checks issued before 1890.

You Can Make Money From Your Arts and Crafts

I opened this book, steeled against finding yet another cutesie-pie set on how to make five hundred dollars a year selling stuffed doggies. Not so, folks. This manual is the real thing, detailed right down to what sort of chair to have in your booth at a crafts fair. The information is experienced — too experienced for one person's lifetime; I expect it came from lots of watching others' successes and failures as well as the crafter-author's own. My own efforts at selling crafts tell me that this book is a necessary part of your enterprise. You absolutely must know what's in here, or you will likely end up in a morass of frustration. Easy to read, and obviously intended for those who are not very good at business. (Hmmm, you could probably do pretty well selling these books at a crafts fair . . . let's see . . . page 97: How to enter an arts and crafts show.)

—J. Baldwin

•

The statistics reported from a recent three-day arts and crafts show held in Pennsylvania reveal that the 170 exhibitors had total sales of over $400,000. Sales at the leading fine-arts booth came to $9,250, while the leading crafts booth wound up with $9,500 in sales. On average, each exhibitor made $2,350 in sales for this three-day event. These folks were obviously not starving artists.

•

Artists and craftspeople often overlook the importance of packaging. Perhaps they think that attention to packaging resembles commercialism, and they wish to avoid this label. But, in connection with good packaging practices, commercialism simply means "business methods designed for mass appeal." What is wrong with that? Since artists and craftspeople are competing for the customer's dollar, a successful product must be designed to have mass appeal. To intentionally steer a course in the opposite direction is absurd.

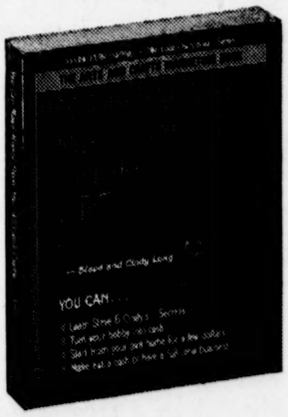
•

People often become impulsive about buying an item when they see it selling like hot cakes. In the trade, this phenomenon is known as a "piranha feed."

•

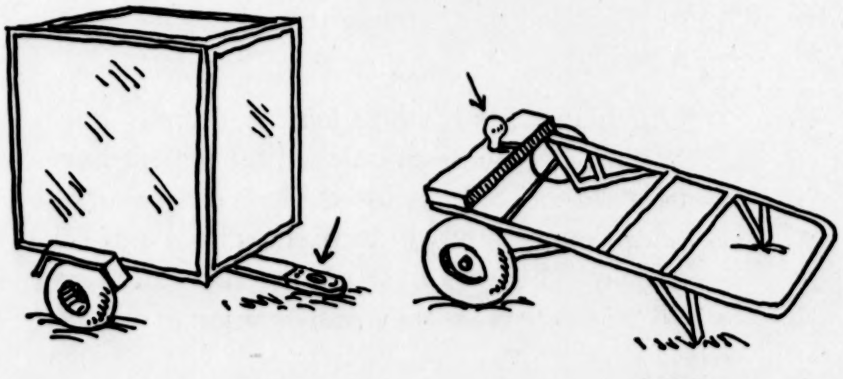
If a customer has spent some time looking at your display, you can say, "It's really difficult to make a choice, isn't it?" If he says no, he will have to qualify his answer. "No, I think I've decided on the green one." If he says yes, he must also qualify it, "Yes, I'm trying to find . . . " This line is definitely worth remembering. You will find that it can repay the price of this book many times over!

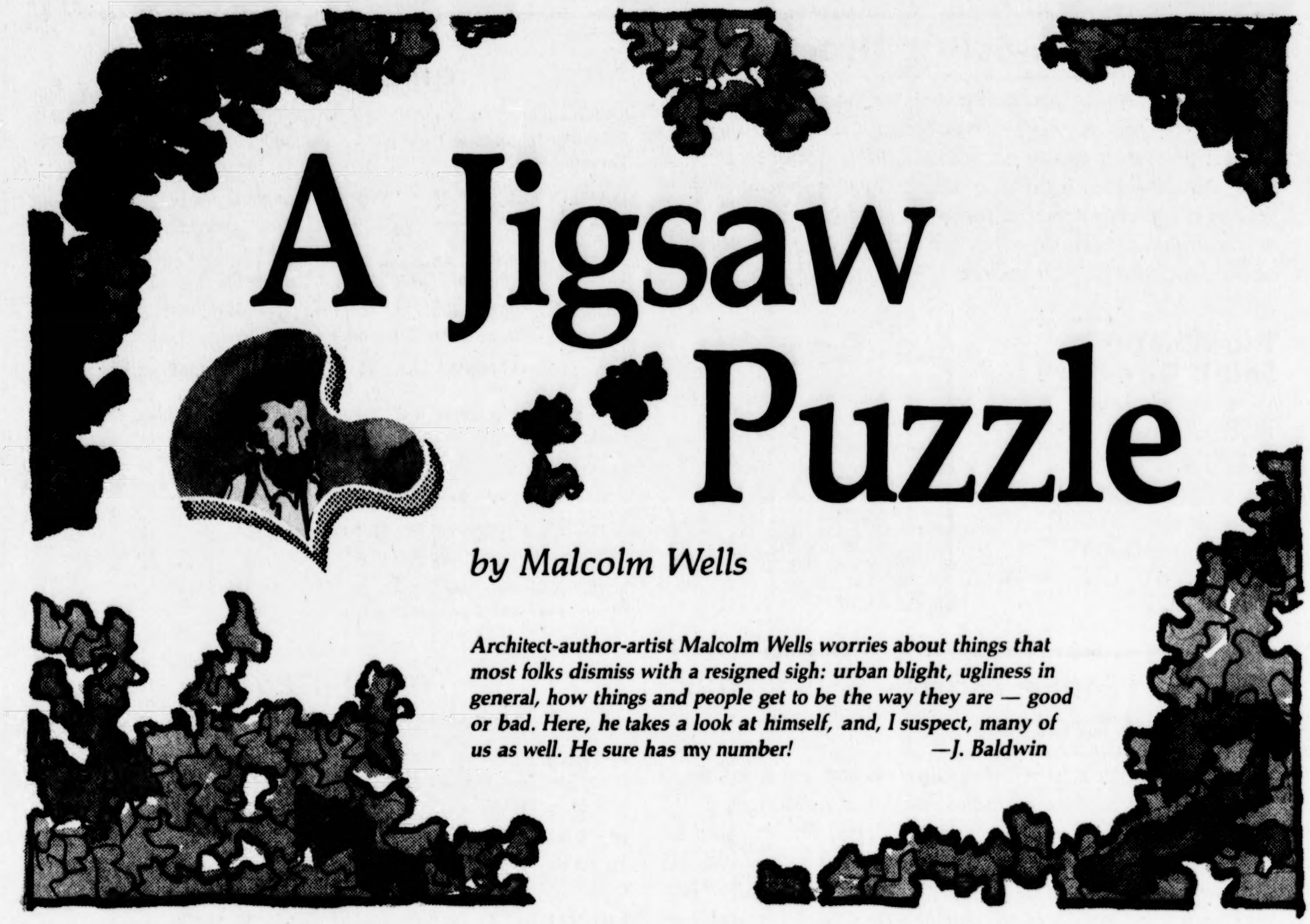
You Can Make Money From Your Arts and Crafts
Steve and Cindy Long
1988; 224 pp.
$14.95
($17.45 postpaid) from:
Mark Publishing
15 Camp Evers Lane
Scotts Valley, CA 95066
800/622-7372
or Whole Earth Access



Whatever works is fine, but remember one thing: You'll almost always have to pack in and pack out your display and merchandise. Usually you will have to move these things a considerable distance from your car. Most people use some type of dolly or handcart, but a friend of ours came up with an award-winning idea worth sharing.

He attached a trailer ball to his hand truck. This fits a tiny trailer that he hauls with his van. He hooks the trailer to the hand truck and easily steers the unit (with his total display and inventory) to his booth site. This unit is so compact that it fits between two open doors so that it can be used inside a building. Genius at work.





A Jigsaw Puzzle

by Malcolm Wells

Architect-author-artist Malcolm Wells worries about things that most folks dismiss with a resigned sigh: urban blight, ugliness in general, how things and people get to be the way they are — good or bad. Here, he takes a look at himself, and, I suspect, many of us as well. He sure has my number! —*J. Baldwin*

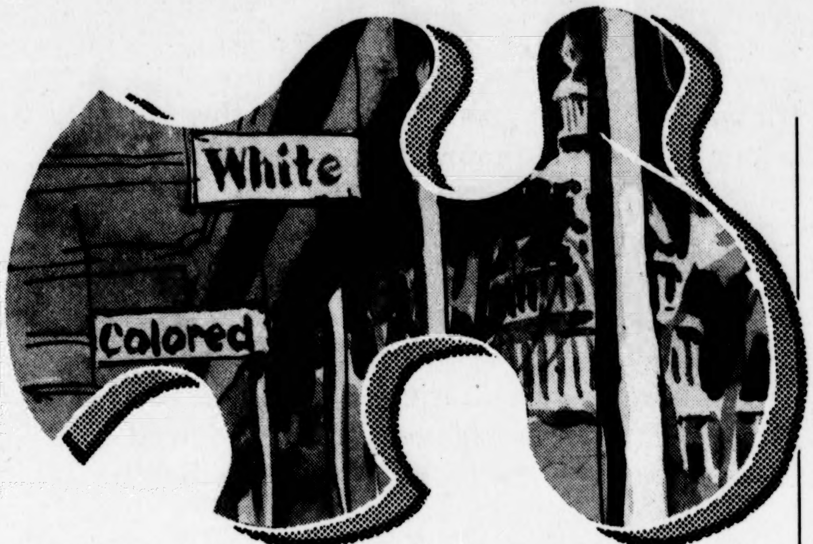
HADDONFIELD, New Jersey, in the 1930s was a bedroom suburb of Camden and Philadelphia. All the daddies came back on the evening trains. All the white daddies, that is. All the mommies stayed at home. And all the colored people — they were never called Negroes or blacks — stayed down at the end of Ellis Street. I never wondered why. They lived down by the south branch of Cooper River, the river that was always a murky green, and I never wondered about that, either.

The colored people did the menial work of the town. But I never wondered why. There was a little movie theatre in Haddonfield. It was called The Little. It had a tiny balcony, up by the projection booth, in which all the colored people sat. I always thought they sat there because they wanted to. They reached the balcony by a winding stairway that would have been a deathtrap in a fire. There was no other way out, and no one, apparently, ever gave it a thought.

Our high school was at least nominally integrated. The white-to-colored ratio must have been 50 to 1. The colored kids were generally regarded as inferior, dumb in school and suited only for the lives their parents led, down on Ellis Street. Why they didn't speak as well as we, or talk about careers, never occurred to me. I'm just glad I wasn't one of the ones who tried to be a tough guy by calling the colored kids — out of earshot — shines or smokes. Maybe they had names for us, too, but I never wondered about it.

WE ALL KNEW about slavery in America. We had learned that Lincoln was a great man for ending the practice. But that's as far as we went as civil libertarians. I never gave the subject another thought. None of us ever talked to the colored kids other than to trade a few wisecracks with them as we walked together for a block or two before they split off toward Ellis Street. The word integration was unknown to us but if it had been explained we would probably have said that it applied to our town. After all, we weren't like the people we'd heard about, down south, who forced "niggers" off sidewalks. We weren't prejudiced (another still-unheard-of word); we weren't anything. Life simply seemed normal to us. Things were pretty much the way they'd always been, as far as we could see. I never wondered about it.

During World War II, when I was sent south for military training, the first seeds of my social awakening must have taken root in me at the sight of the "white only" and "colored only"

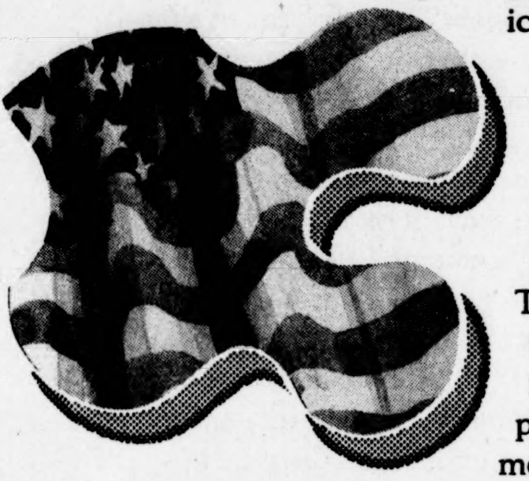


signs over the drinking fountains and the toilet room doors at Union Station, practically in the shadow of the U.S. Capitol. They made the land of the free sound a bit hollow. And, as I traveled deeper into the south, all I'd heard about it came true. Colored people were ordered around like animals or, worse, treated as if they were invisible. Beyond that, however, they seemed to be no worse off than their northern cousins. Their roles were the same: laundresses and bootblacks, gardeners and scrubwomen. There were no colored men in any of the military units I ever saw. I never wondered why. The overt racism of the south did, however, move some of us "damnyankees" to show off, to horrify our new "rebel" friends with lies about the way it was up north. They probably believed us, picturing an intermarried, integrated society as foreign to them as it was, in truth, to us. But we liked to rub it in. On a weekend pass we'd go into Atlanta and show off by visiting the colored parts of the city, stopping for Cokes at tumble-down grocery stores, laying it on thick, carried away by our phony northern egalitarianism, addressing the silent people as sir and ma'am. What they thought of such antics I cannot imagine, and I was too full of myself even to wonder about it. But our slumming came to an abrupt end one day when two white cops patrolling the area in a police cruiser spotted us on the street and reduced us instantly from tough marines to frightened boys. They lectured us without the slightest concern about being overheard by the silent dark-skinned people within earshot. "What you boys doin' down here? Tryin' to get yourselves killed? These niggers'll slit your throat as soon as look at you. Get in the car." And that was the last we saw, or perhaps even thought about, colored people until long after the war, when things like Jackie Robinson's admission to major-league baseball reminded us again of the people who had been largely invisible to us as well.

BUT THAT WAS years later. In the meantime, I'd been discharged from the marines without firing a shot. And, having stumbled by accident into a job as office boy for a Philadelphia ad agency, I decided to go to art school and make my fortune as an illustrator. That career proved to be short-lived, and I can hardly believe, now, that I spent a whole year in that art school. All I remember are the weekly trips to the Philadelphia Zoological Gardens, America's oldest zoo. All my life I'd loved going there, and here I was, required to go there every week. It was wonderful. I never drew pictures of the animals but I clearly remember feeding them and — forgive me — teasing them mercilessly. I remember in particular the polar bear I visited each week. I found that if I rocked from side to side for a few minutes he would leap in my direction, belly-flopping into his dirty little pool, hoping to get me soaked. I did it mainly to impress the girls in the class, I suppose, but I managed only to impress that poor white bear. I have no way of knowing if my taunts really annoyed him or if they relieved his boredom but I never wondered about it then, just as I never wondered about the morality of caging the beast in a sooty city so far from the pole.

It would be 15 years or more before the cruelty of such captivity would enter my consciousness, 15 years before I'd hear the term "prison for animals." But by then, of course, I was ready to hear it.

Still, even now at 62, it's hard to convince myself that this isn't in every way the great country I was taught to love. It's painful to look at the truth. My grade-school indoctrination was so effective I still want to believe it all, from the home of the brave to the purple mountains' majesty. I'd been told about slavery, about the great buffalo massacres, and about the Indian wars, but they had all been presented in such a rosy light each page of the nation's history seemed justified, almost sanctified, when seen against the grand tapestry of our progress across this shining continent. Waving fields of grain, great heroes, American know-how . . . I bought them all.



That we had stolen this shining continent from its native people bothered me not in the least. That we had then proceeded to dismantle it tree by tree, prairie by prairie, made no dent. Indians had been savages; now they were living better lives. They were, in fact, being prepared to enter the white society. They were becoming civilized. When a tame old Indian chief decked out in full ceremonial regalia and sneakers came to our school we knew the torch had been passed in the right direction, from a simple stone-age culture to a much higher one. It was inevitable. Manifest destiny. All for the good. Indian troubles, like slavery, were a thing of the past. I never wondered about them again.

That's why I was so surprised when, as a successful architect in my mid-thirties, I got a phone call from a Quaker acquaintance who asked if I'd be willing to help his group find relocation housing for some Senecas who were about to be pushed out of their ancient valley by a dam project. It would flood almost the entire reservation. I don't like to admit it but I had no idea where Senecas might be found, so I was astonished to learn they were only half a state away, in western Pennsylvania and New York. When I met them I was further surprised to find them ordinary people who looked and acted and dressed just like everyone else. They wore no headdresses. They carried no tomahawks. But they did have the best senses of humor I'd experienced, and their jokes about their plight at the hands of the Army Corps of Engineers almost broke my heart.

They knew the dam was inevitable. They'd been through it all before. And, sure enough, it was, in spite of great public sympathy, in spite of expert testimony against the project, and in spite of a treaty with the United States Senate granting them that reservation forever. The ancient tribal area is now a huge lake for white water skiers, and the U.S. record of treachery in Indian affairs continues unbroken. Still, it left few scars on me. I lived through it with only slightly ruffled feathers, just as I'd lived through news of the Holocaust and the Bomb.

AT THE TIME, I was making more money than a young man should probably make. It gave me inflated ideas about my own worth and wisdom. I could do no wrong. I'd become a one-man natural-resources disaster but I never wondered about it. I built big uninsulated buildings with oversized heating plants and huge air conditioners. I designed vast parking lots. I uprooted acres of trees and wildflowers to create green lawns around my architectural gems. And I ate whatever I felt like eating. I could afford it. That my vegetables came from California and grew with water meant for Arizona and Mexico never bothered me. I never wondered about the use of pesticides. Even *Silent Spring* failed to do more than ding my conscience. I was, in other words, a successful and respected American; out of control, irresponsible, uncaring, still largely unfeeling, running amok.

But an uneasiness was setting in. It had to; in the sixties the whole country was beginning to hear about the destruction of the environment. Euell Gibbons made news by eating "weeds." It intrigued me so I went to see him, and a few pieces of the puzzle suddenly fitted together.

Weeds were what were supposed to grow here. In Wisconsin, a woman, a naturalist named Lorrie Otto, was helping people win lawsuits against towns that made them maintain neat lawns instead of letting prairie plants take over. Now, why in the world would they want to do that, I wondered, so I went to see her and another piece was added to the puzzle.

Slowly, ever so slowly, I began to see that *all* the pieces were part of the same puzzle, that you couldn't be a racist and an environmentalist too. I saw patterns, connections between things, and, as I did, I found myself growing away from my friends. I began to wonder if I should remain a Republican just because my mother and father had voted that way, a Christian just because that's the faith in which I had been raised. I wondered, in fact, if I'd been wrong about almost everything.

My business took me to Europe. For the first time, I was able to see not only other ways of life but also to see America through the eyes of non-Americans. It made me so ashamed of our loud-mouthed pushiness I took to dressing and acting like a native over there, and I cringed with embarrassment whenever I heard the harsh noisy accents of American speech.

MOST OF US GO through jolting experiences when we near 40. They take many forms, send us in strange directions. Mine sent me too far. I went right over to the other side, growing a beard, eating vegetables, refusing to accept design commissions that weren't good for the land. All I managed to do was drive my clients away and embarrass my family. I suppose it was all necessary before I could crawl out the other side and see what a big zero I was. Before I looked in the mirror, however, I looked everywhere else, blaming racists, the military, politicians, hunters, developers. When I finally saw my reflection I said Oh my god, and saw that he too had been part of the myth.

I wanted to go back and start over, to undo all I'd done. I wanted to revisit the Haddonfield of my childhood and find the kids who'd sat so uncomplainingly in that tiny balcony at the Little, watching Shirley Temple and Carole Lombard. I wanted to apologize to them, tell them I'd had no idea what they'd endured. I wanted to become a night raider and unlock all the zoos (what tragedies that would have caused!). I managed to throw away my lawnmower and let the wildflowers appear but I couldn't give my land back to the Indians. The mortgage bankers saw to that.

It was simply too late. I couldn't even remember the names of the black kids in my class. And the poor old polar bear was surely dead. The Senecas didn't need me. I was locked in and programmed to be a 20th-century American consumer. All I could do was ease my foot off the gas, live a little more slowly, and help fit more pieces into the puzzle. It's still far from finished but I can see already that it's a beauty. Decades may pass before we get even the center part finished. That's all right; we started assembling it only a generation or so ago. When we see the whole picture we may stop all this brutalism and cruelty and get ourselves together just in the nick of time. ■

Divided Twins: Alaska and Siberia

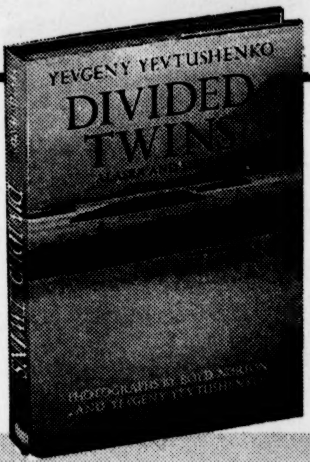
A Russian poet and an American photographer teamed up to produce this appeal for political sanity. Since there isn't room here for a complete poem, and we can't show the shockingly pure color of the photos, I'll let the poet tell you what he had in mind. Maybe it's because I lived in Alaska for three years, but this really got to me as few coffee-table books do.

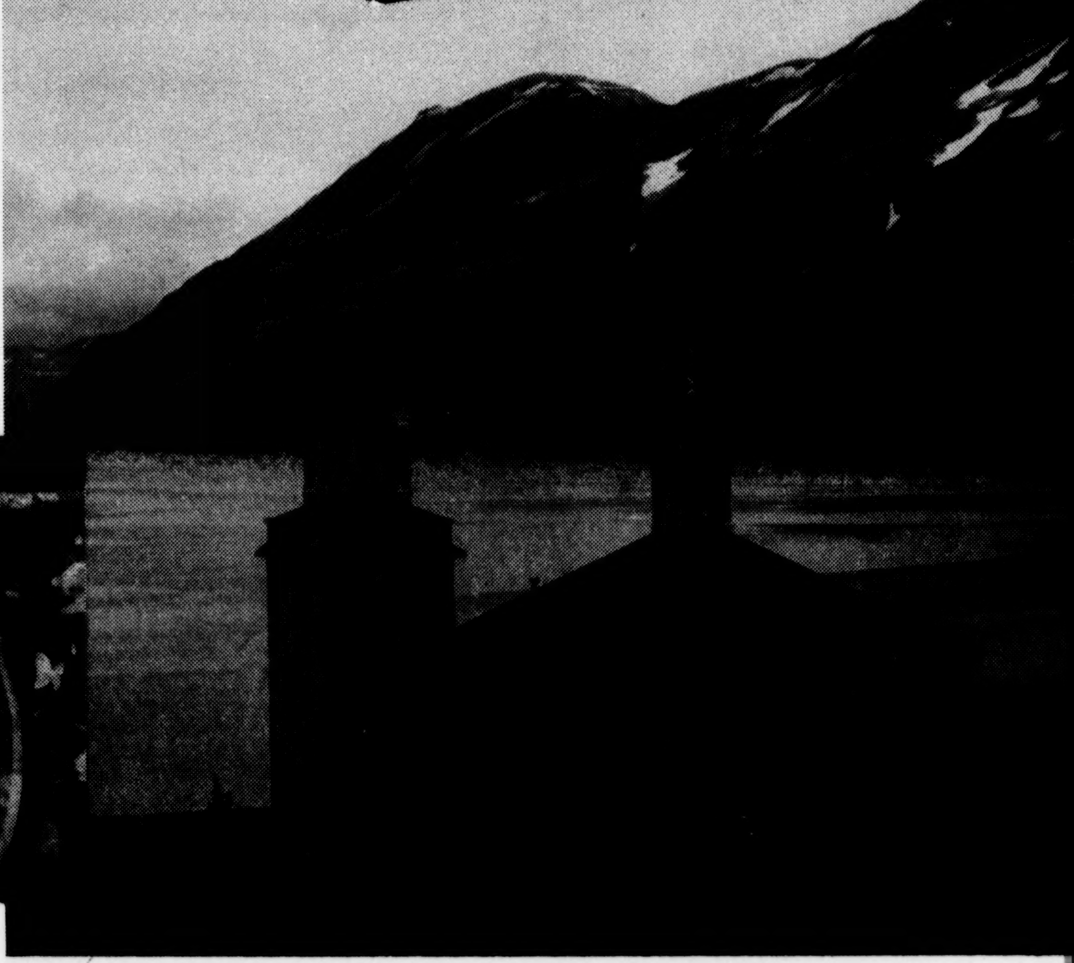
"In order to come together, people must see each other even through walls erected by politics, and understand that beauty is not the exclusive property of politics but the common property of all the inhabitants of the earth. Nature is a potential means of mutual understanding."

In Russian and English.

—J. Baldwin

Divided Twins
Yevgeny Yevtushenko
1988; 224 pp.
$40
($41.50 postpaid) from:
Viking-Penguin/NAL
120 Woodbine Street
Bergenfield, NJ 07621-0120
201/387-0600
or Whole Earth Access





ALASKA: Russian Orthodox church, Ninilchik, Kenai Peninsula.

SIBERIA: Retired pilot, Zima Junction.

Surviving Together

Without a doubt the best catalog of information and resources on the U.S.-Soviet citizen-diplomacy movement, ***Surviving Together*** *is a well-conceived and beautifully executed tool.*

Regular features include listings of recent exchanges and cooperative projects, reprints of the most informative articles from the U.S. and Soviet Union on our bilateral relations, updates on related trade and legislative matters, official agreements, spacebridges, conferences and more.

The news on cultural, professional, educational, scientific, sports and other exchanges also includes information on how to contact the groups involved. *—Richard Schauffler*

[Suggested by E. A. Noble]

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Colorado Selected for US-USSR Environmental Camp

Colorado has been selected as the site for a prototype student exchange camp between the US and USSR. Twenty-five Soviet teenagers will visit the Colorado Rocky Mountain School (CRMS) in Carbondale this August to engage in discussions with 25 American children on problem-solving for the 21st century. CRMS, a non-profit, private, college preparatory boarding school for grades 9-12, is the principal US organizer of the summer program.

Soviet participation in the exchange program was initiated by Academician Yevgeny Velikhov, Vice President of the Soviet Academy of Sciences and a senior advisor to General Secretary Gorbachev. It was Mr. Velikhov's dream long before the recent Summit to develop a chain of youth camps where children can discover each other's cultures and technologies.

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Bridging the Bering Straits

After three and a half years of planning, Dr. Mimi George and Dr. David Lewis set sail for Siberia this summer. The husband-wife team are co-leaders of the "Friendship Arctic: Bridging the Bering Straits Project" that culminated in sailing from Nome to the Siberian town of Provideniya in July.

Using the Inter-Polar Research Society's 70-foot auxiliary schooner George and Lewis took a group of about 20 Alaska Eskimos with them to Siberia. The Eskimos were united with relatives living in Siberia. The border between Alaska and Siberia has been closed since 1948.

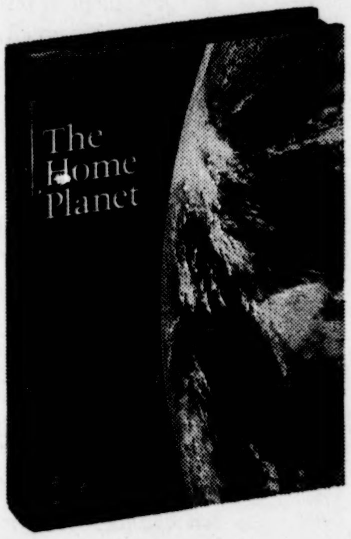
Surviving Together
Harriet Crosby and
Nancy Graham, Editors
$24/year
(3 issues) from:
Institute for Soviet-American Relations
1608 New Hampshire
Avenue NW
Washington, DC 20009

SURVIVING TOGETHER

The Home Planet

*Here are 150 awesome color photographs of earth from space (most previously unpublished) chosen from NASA and Soviet archives. The comments from the world's astronauts and cosmonauts are translated into the nine languages in which this book has been simultaneously published. Editor Kevin W. Kelley (no relation to our own **WER** KK) has done us a great service by seeing this difficult international enterprise through to such a beautiful result. Most readers come away with a new feeling of what it means to say "our earth."* —*J. Baldwin*

The Home Planet
Kevin W. Kelley, Editor
1988; 149 pp.
$50
postpaid from:
Addison-Wesley Company
Jacob Way
Reading, MA 01867
617/944-3700
or Whole Earth Access



Lake Winnipeg, Canada.

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Lebedev had never before grown plants, but on the station he used to rush off to our "Oasis" installation every morning almost before his eyes were opened. He was growing peas and oats there.

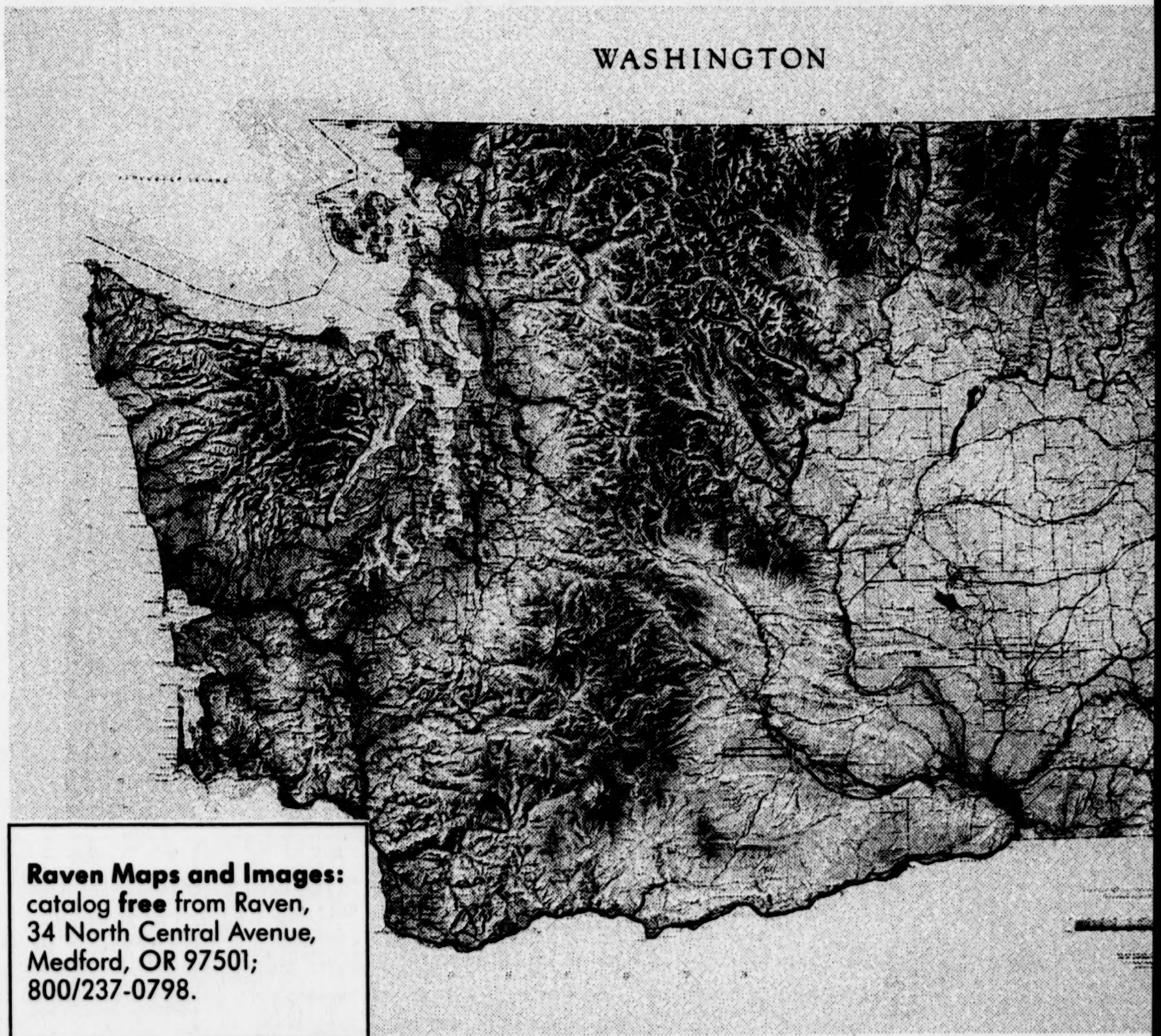
—*Anatoli Berezovoy, USSR*

Raven Maps and Images

These smart cookies turned information-rich but deadly dull gray-brown almost embarrassing U.S. government maps into captivatingly lifelike shaded-relief wall maps of twelve western states. Because the maps are made from the Geological Survey's negatives all the minutiae in the originals are preserved. The addition of intelligent and subtly applied color enhances only, never obscuring the details.

These are the kinds of maps you want to fall face-down into. (Raven suggests you buy them in their optional laminated versions to protect against greasy faceprints.)

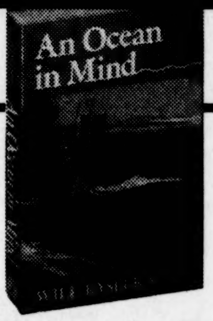
The same smart cookies produce a poster series of oblique views, computer-plotted from digital terrain information collected as part of mapmaking routine by government agencies. Again, the use of color and the design are the arresting attributes. Looking at their view over "The Rockies, the High Plains, and the Intermountain West," I found myself smelling distant pinyon smoke and feeling cool, high-altitude breezes. —*Don Ryan*



Raven Maps and Images:
catalog **free** from Raven,
34 North Central Avenue,
Medford, OR 97501;
800/237-0798.

Stephen D. Thomas
The Last Navigator

The Last Navigator
Stephen D. Thomas
1987; 314 pp.
$3.95
($4.95 postpaid) from:
Ballantine Books/
Random House
400 Hahn Road
Westminster, MD 21157
800/638-6460
or Whole Earth Access



An Ocean in Mind
Will Kyselka
1987; 244 pp.
$14.95
($15.95 postpaid) from:
University of Hawaii Press
2840 Kolowalu Street
Honolulu, HI 96822
808/948-8255
or Whole Earth Access

The Last Navigator • An Ocean in Mind

This very intimate journal of a gringo who seeks out the last navigator in order to become his apprentice has some spooky moments similar to the incredulous Carlos Castaneda apprenticing Don Juan. In this case the sorcery is the proven ability to sail the Pacific ocean without instruments. Using only stars, wave patterns, cloud behavior, and birds, Polynesian wayfarers can land a canoe on a tiny island in a vast ocean that spans one-half of the earth's surface. It is considered a feat of mind without parallel. Navigators commit extremely baroque charts of the heavens to memory and make complex mental calculations continuously during the trip, which can last a month, and which is usually done without sleep in order to maintain 24-hour observation. In ***The Last Navigator****, the skills of an aging and studentless Mau Piailug are presented in the larger context of the Polynesian world view, complete with an anthropological treatment of navigating concepts.*

An Ocean in Mind *is a more clumsily written book that, with a little work, supplements* ***The Last Navigator****. It too seeks out the wisdom of Mau Piailug, but third-handedly. The author, a retired geologist and amateur astronomer, looks over the shoulder of a Polynesian apprentice pilot as he tries to absorb this immense knowledge. The book analyzes the log of several journeys in detail to discern the process.*

For me, these stories, particularly ***The Last Navigator****, are a reminder of the visual bias of our minds, and of the necessity of possessing a broad metaphor to fully tap its memory.* —*Kevin Kelly*

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All of Oceania, an area nearly a quarter of the earth, was populated by a single race. Navigators using just the stars, the ocean swells, and the flight paths of birds were making epic ocean voyages in handhewn sailing canoes while Europeans still lived in rude huts scattered across a land of primeval forests.

•

The borders between the natural and the supernatural seemed to be drawn differently in the Micronesian navigator's mind. If the *palu* actually believed *pookof* was imbued with spiritual significance, then he was some fusion of shaman and technician.

•

He claimed this sign was now present and that it indicated a weak current from the west, flowing against the light northeasterly wind. I had never read about such a sign in the literature and I pressed him for a more articulate description. He tried to get me to see a kind of "tightness" in the water — tiny ripples flowing on the surface, almost like the wrinkles on a weatherbeaten face. If I watched carefully enough, he said, I would perceive the ripples flowing against the wind and wavelets. I stared at the shimmering water until my eyes hurt, but could detect nothing, just the wavelets, glittering like a multitude of fishes caught up in the nets of the sea.

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There was no powerful mathematical model one could apply, as in Western navigation, nor were there primers and instruction books in case one forgot something. The *palu* had only his senses and his memory. So critical was memory to navigation that it defined his notion of courage. In the interviews for *The Navigators* film, Piailug had said: "To navigate you must be brave and to be brave you must remember. If I am brave, it is because I remember the words of my fathers. . . . When I voyage, I forget everything else and think only of what my grandfather, father, and master taught me. Then I am not afraid."
—*The Last Navigator*

•

Back before the 1976 trip we were working on the canoe lashings. One evening after work we were sitting around talking story. Mau Piailug was with us. I didn't really know him then. But he talked about the Southern Cross and how important it was to him in his navigation. I didn't know the sky at that time; in fact, I hardly knew the Southern Cross. He described it, though, and said that it was standing on the horizon right outside the *hale*. We went out and looked. There it was, right where he said it would be! It blew my mind that he could know where it was without even seeing it.

•

"But how do you steer when you cannot see the stars?"

"I use the wave. Big wave come sometime from Merne," and he places the midrib of a coconut frond on the circle to show a line of swells coming from the northeast.

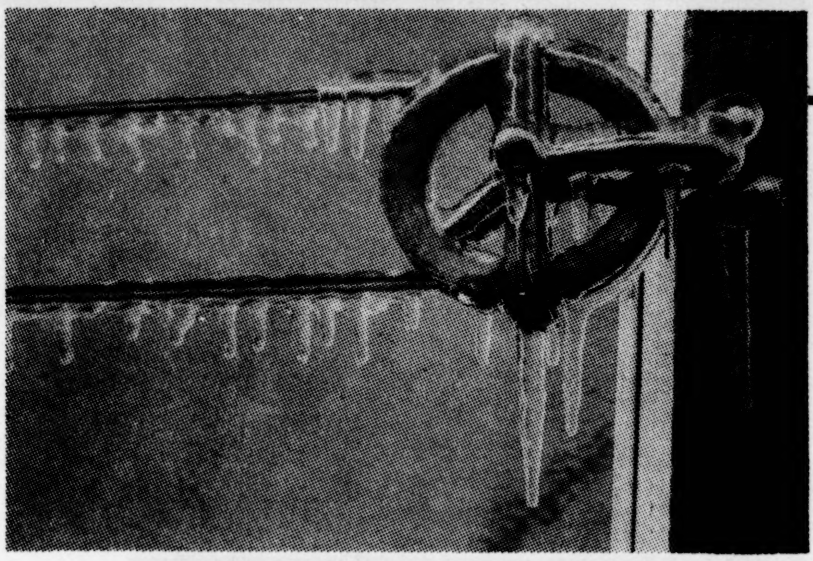
"Big wave come from Tumur," and another midrib indicates the southeast swell. The two intersect in a recognizable pattern — peaks and troughs on the sea that he has pointed out so often to *Hókúle'a* crews in training sessions off O'ahu.

•

Wayfinding requires windward landfall. In the absence of a way for determining longitude — and that does require instruments — the navigator sails to the windward side of the island he's looking for until he gets to the right latitude. Stars tell him that. Then downwind to the destination.

•

It was nearly a Full Moon but clouds were so thick you couldn't see it. Still I knew where it was even though there was no reason for me to know. I could have figured it out analytically, but I already knew. Here's a separation between knowledge and understanding. At times like that I know, but I don't know how I know.
—*An Ocean in Mind*



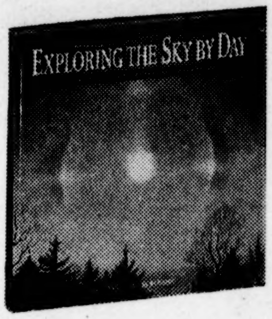
Freezing rain can severely damage trees, power lines, homes and buildings. When the ground is below freezing and the air is still above 0 degrees C (32° F), rain falls as drops that turn into ice on contact.

Exploring the Sky by Day

This beginner's guide explains such phenomena as sundogs, sky color, cloud formation and wind. It's just what you need when your kid asks a question you (of course) once knew the answer to. Illustrated with great photographs. —*J. Baldwin*

•

If a raindrop is any larger than a green pea, friction breaks it up as it falls. The maximum speed a raindrop can fall is 30 kilometres per hour (19 mph). Again, friction with the air prevents it from going any faster. As they fall, raindrops do not look like teardrops, as they are often drawn. Instead, they look like tiny hamburger buns, with the flat side down.



Exploring the Sky by Day
Terence Dickinson
1988; 72 pp.
$9.95
($11.70 postpaid) from:
Harrowsmith/
Camden House
The Creamery
8206 Ferry Road
Charlotte, VT 05445
800/334-3350
or Whole Earth Access

Burgess

In September 1981, I attended a conference at MIT's Center for Advanced Visual Studies on "Sky Art" — aerial and orbital creations, some actual, some just dreams.

The little I knew about Lowry Burgess's art, secondhand, did not make me eager to learn more about it. It seemed such a murky, pretentious hodge-podge. Two hours into Burgess's description of his work, I was, along with everyone else in the audience, overwhelmed, exhilarated — and convinced that "The Quiet Axis," Burgess's life's work, is a masterpiece.

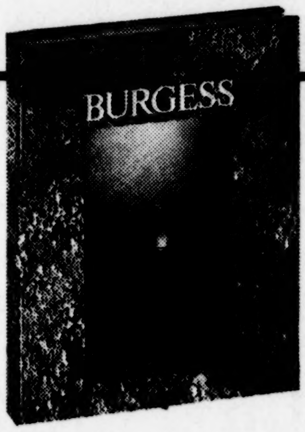
Raymond Vezina has done a marvelous job editing the huge volume of material needed to make sense out of this project. The book is filled with luscious color photos, diagrams and a torrent of lyrical prose in which Burgess describes the Quiet Axis and the thinking behind it. In addition to English, the text is given in German, French and Spanish.

Four "emplacements" now define the Axis. The first, "The Inclined Lake," was buried in Afghanistan in 1974: twelve glass holograms of a water lily, sandwiched between twelve pairs of photographic plates of Afghanistan's zenith and nadir night skies, rest underground on leather pads tilted at the angles of the galactic plane at local sunrise in the middle of each month.

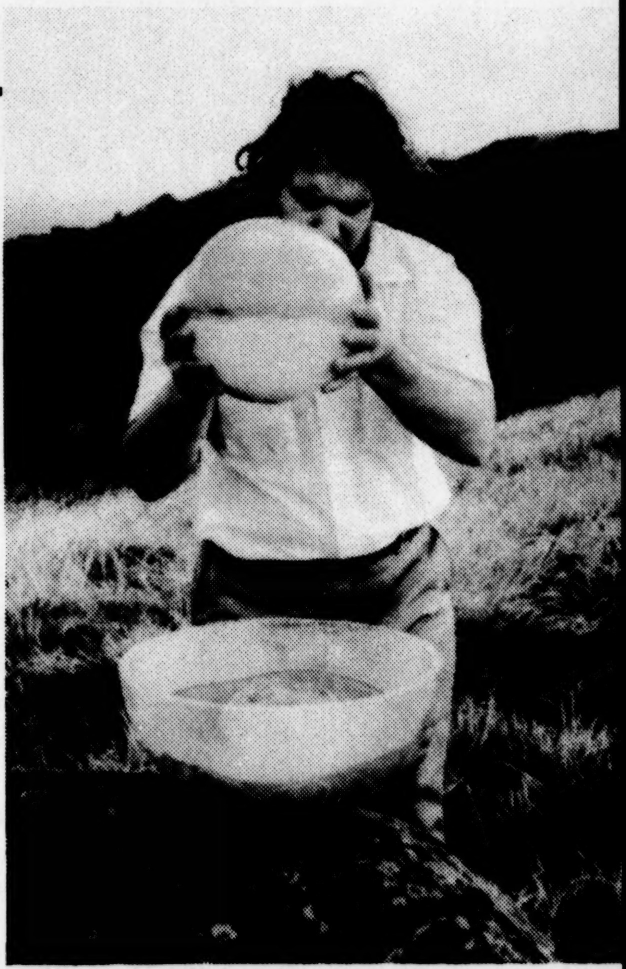
"The Utopic Vessel" was dropped to the floor of the Pacific Ocean near the island of Rapa Nui in 1979. It is a beachball-sized glass sphere filled with pollen, vermilion, honey and powdered holograms of peaches — this hot-orange powder-paste smothering a book with holographic pages on which phrases float and mingle in a 3-D web of poetry.

*The third and fourth pieces were described in "Art Into Space" (**WER** #48, p. 26). Burgess's "Boundless Cubic Lunar Aperture" piece has been scheduled for launch in the February '89 space shuttle.*

The Axis is a line through the Earth, connecting the first two emplacements and extending beyond them into space. The third and fourth pieces will orbit the axis eccentrically — for reasons that would take a book — this book — to begin to unravel. —*Robert Horvitz*



Burgess
(The Quiet Axis)
Lowry Burgess
1987; 175 pp.
$35.95
($38.95 postpaid) from:
Diffulivre Inc.
2973, rue Sartelon
Ville St.-Laurent, Quebec
Canada H4R 1E6
514/336-2663



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Thus, thousands of small peach forms were mulched with pure vermilion powder to make the Utopic Substance. Through the process of telepathic exposure to futuric images hoped for by 60 pairs of friends, the intense futuric redness was catalyzed with the ripened yellowness to resonate within the peaceful ocean, the Pacific.

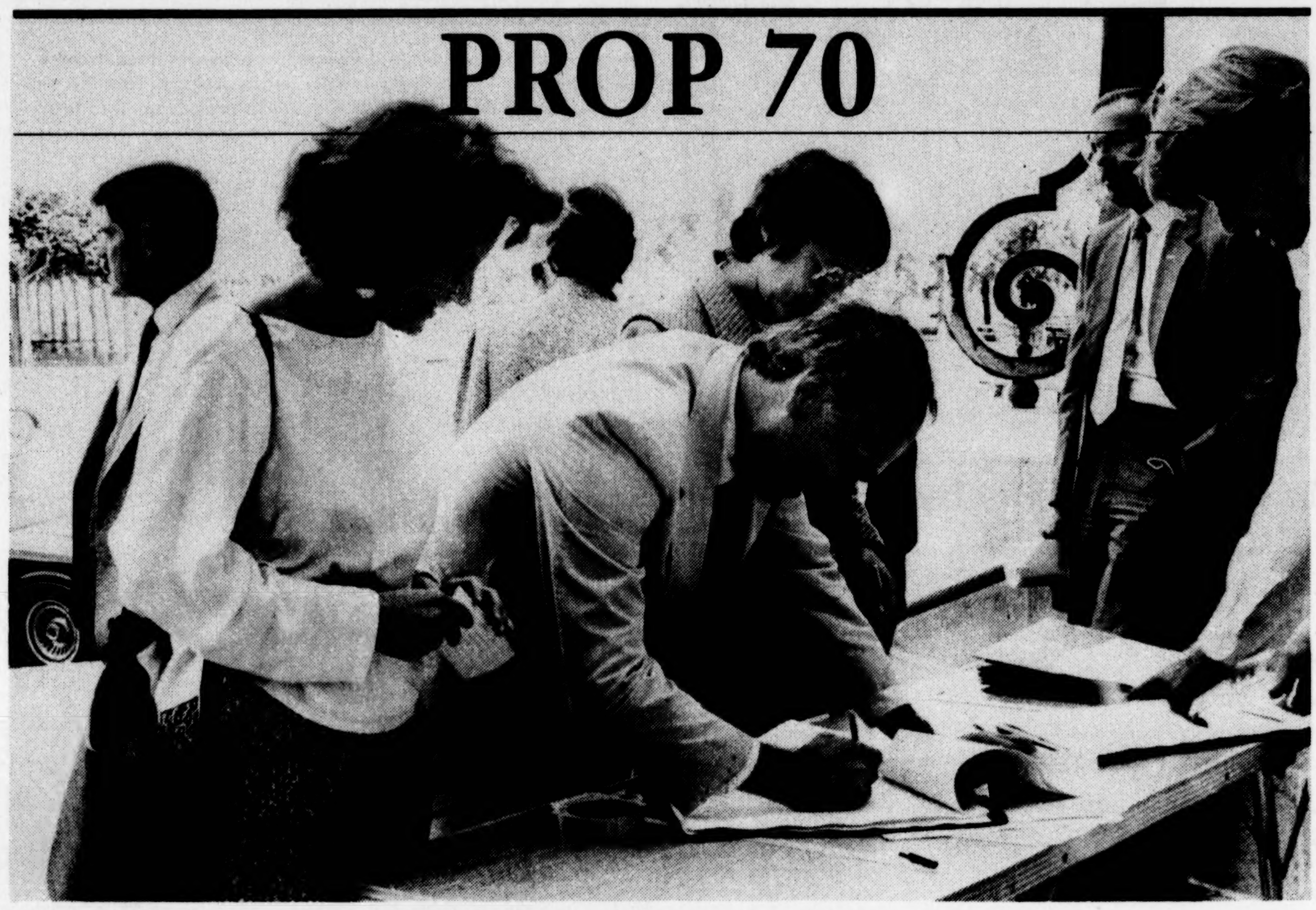
•

All of this was brought down into the blue bowl ocean-sky, to Rapa Nui, eye of heaven, navel of the earth, and there assembled and sealed on the volcanic edge of Rano Kao.

Thereafter the Utopic Vessel was released amid a stormy turbulence to descend and rest upon the deep Pacific floor.

Through this gesture of release a bright spectral splash ascends, watched over by a hovering arctic albatross, an ascent and a falling into a vibrant fluidity, a pure density.

PROP 70



Tracy Grubb

Twenty thousand volunteers gathered more than 600,000 signatures and three-quarters of a million dollars to get Proposition 70 on the ballot.

How Californians Won $776 Million to Protect Wildlife, the Coast and Park Lands

BY ESTHER FELDMAN

IN JUNE 1988, Californians passed Proposition 70, a $776 million California Wildlife, Coastal and Park Land Conservation Act which provides critical wildlife habitat, coastal and park lands throughout California.

Prop. 70 has been described as the greatest environmental victory in California since passage of the 1972 Coastal Act, and is the first park bond act in history to be placed on a ballot through the citizen's initiative process. Although this accomplishment is an impressive one, the diverse coalition that formed to support Prop. 70 and to raise the funds necessary to pass it is at least as noteworthy: Prop. 70 was supported by developers and business leaders, farm, civic and conservation groups, Democrats and Republicans, sportsmen's and humane organizations, private land trusts and major corporations, and hundreds of individuals.

Times have changed. The outspoken contentiousness that marked the environmental movement of the 1960s and 1970s — and that was so necessary during those years — is no longer enough, or even effective. This is not to say that the environmental battles are not still here to be fought. But the realities of the 1980s call for a different sort of action, and it is increasingly vital that environmentalists work with their opposition to find solutions that are acceptable to both. Prop. 70 strongly demonstrates that this kind of coalition-building can work, and that it can allow organizations and individuals with highly diverse viewpoints to reach common ground on controversial subjects.

The need for this kind of approach cannot be stressed strongly enough. The urban growth pressures that led to the necessity of creating Prop. 70 continue to increase as we make our way into the twenty-first century. If we want environmental concerns to be seriously considered, we must deal with those concerns in the context of the economic realities of our society. The wide-ranging appeal of Prop.

Esther Feldman was the Research Director for the Planning and Conservation League, and served as the Assistant Campaign Director for the Prop. 70 campaign. Her initial volunteer research project led to the development of Prop. 70. She now works in conjunction with the Santa Monica Mountains Conservancy in Los Angeles, California.

70 during the campaign was the measure's focus on preserving the quality of life in California, and on protecting open space, wildlife habitat and natural lands in order to enhance urban areas, tourism and business development. We were able to show that preserving these lands made economic sense.

PROP. 70 was conceived of by the Planning and Conservation League (PCL), a small statewide environmental lobbying organization devoted to promoting sound environmental laws. The effort began in 1984 as a PCL Foundation research project on the feasibility of urban greenbelts. We began with a volunteer intern, and the project quickly grew into a full-time one. The research led to the development of an urban greenbelt bill in 1986. PCL sponsored this legislation and worked to get it passed through the state legislature.

However, despite popular support, the Legislature failed to act on this bill in 1986, along with two other land conservation measures that would have provided funds to preserve wildlife habitat and the coast. Led by Jerry Meral, PCL's Executive Director, we took these three measures and combined them to form the basis of Prop. 70.

Why An Initiative?

We decided that the only way we would be able to get any significant amount of money for land acquisition would be to place a conservation measure on the state ballot through a citizen's initiative. All other funds for the conservation of wildlife habitat and parkland had been exhausted, and the need to preserve our wildlife, natural and park lands was growing more and more critical.

> ***We were extremely careful not to include any projects that were at all controversial, because we knew we could not afford to fight any organized opposition.***

California's tremendous urban growth (at the rate of an entire San Francisco every year) seriously threatens the natural, scenic and open-space lands that are an integral part of the quality of life in our state. Many of these forest, river, coastal and ridge lands were in great danger of being lost forever unless we took some action.

Forming The Coalition

We brought together a coalition of statewide conservation groups to form Californians for Parks and Wildlife (CALPAW) to direct the initiative effort. CALPAW included PCL, the Sierra Club, National Audubon Society, Defenders of Wildlife, California Waterfowl Association and experts in park planning, wildlife habitat preservation and initiative campaigns. Two of PCL's staff became campaign director and assistant campaign director, and an office manager was hired as well. These three people were the core staff through the entire campaign.

Throughout the planning process and the actual writing of Prop. 70, we worked to build a solid coalition of support that would result in seeing the measure passed. We met frequently with representatives from the building industry, farming interests, timber companies and oil corporations as well as with developers, realtors and key business leaders. We made an effort to consider the concerns of all of these interests, and to make sure that we were not including anything in the measure that any of these groups would really object to. We knew that widespread support of the measure would be critical to its passage. In June of 1987, CALPAW launched the signature drive to qualify Prop. 70 for the June 1988 state ballot. More than 20,000 volunteers collected over 600,000 signatures to qualify the measure.

What Prop. 70 Does

For the most part, Prop. 70 follows the traditional format for California park bond acts.* It is unusual because it includes specific sums of money for specific projects throughout the state. Two-thirds of the $776 million provided will be spent to actually purchase land, and over 70 specific projects totalling nearly $300 million are written into the measure. This means that individual areas throughout the state are guaranteed protection, including such diverse areas as our magnificent Redwood State Parks, critical San Francisco Bay and Central Valley wetlands, key monarch butterfly habitat along the coast and the threatened Santa Monica Mountains in Los Angeles, to name but a few. Funds are also provided to restore and enhance trout and salmon streams, plant trees in urban areas, preserve coastal areas, maintain productive farmlands in agricultural use and protect critical wildlife habitat for rare and endangered species.

How It Was Done

None of the sponsoring organizations had the funds necessary to run a statewide initiative, so we knew we would have to raise all of the funds for our estimated $750,000 budget if we wanted to get our measure on the ballot at all. (This budget reflects the size of California.) We asked groups that wanted us to include specific projects to make pledges of either signatures or funds. We received pledges of over 600,000 signatures and over $650,000 — and we collected all the signatures and nearly all the funds during the course of the campaign — probably an all-time record of collecting on potential pledges.

These donations ultimately enabled us to meet our budget and to gather the signatures we needed. The groups that made the pledges also formed the core group of our support that lasted through the entire campaign. People were much more likely to support Prop. 70 because they could see how it directly benefited them and their local area. These individual projects allowed us to gain the support of local businesses, developers, chambers of commerce, farming groups, conservative political leaders and many, many others.

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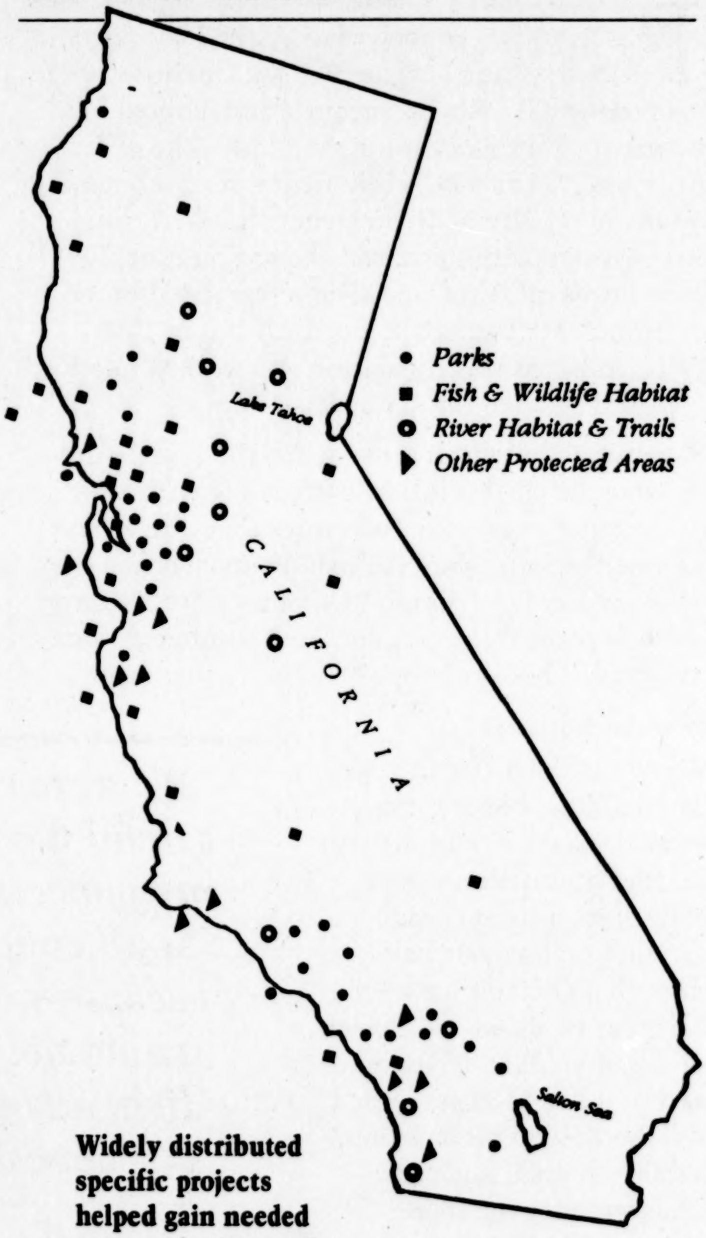
* Bond acts are measures which allow the state to issue bonds for specific purposes such as parks, schools, jails, etc. Investors buy these bonds, which are paid back out of the state's general funds over 20-30 years.

People were much more likely to support Prop. 70 because they could see how it directly benefited them and their local area.



Widely distributed specific projects helped gain needed support for Prop. 70.

We hired a statewide coordinator (Ken Masterton) to oversee the entire signature campaign, as well as nine regional staff people who worked in local areas throughout the state to coordinate local volunteer efforts. These coordinators organized the more than 60 different local groups who had pledged to collect signatures. Because people at a local level really cared about projects in their area, they worked very hard to make sure that Prop. 70 would make it onto the ballot. These thousands of supporters became ready-made grassroots support during the election campaign.

Opposition

We were extremely careful not to include any projects that were at all controversial, because we knew we could not afford to fight any organized opposition. We planned on, and carried out, a very low-budget campaign. We were able to do this only because our opposition was minimal. Farm and cattlemen's groups, and the State Chamber of Commerce opposed us, mostly because they are opposed to buying any additional lands for any park and recreational purposes.

Implementation Of Prop. 70

Now that Prop. 70 has passed, the Planning and Conservation League Foundation is working to ensure that it is properly implemented by all the state agencies who are in charge of the funds. The Foundation is tracking all the Prop. 70 programs, monitoring the bond process and keeping a detailed record of all land acquisitions and program accomplishments.

You Can Do It, Too

The PCL Foundation has also published a comprehensive manual on how to design a measure such as Prop. 70. The publication includes a detailed breakdown of:

Initial research and background information needed
Organization of the entire effort
How to write such a measure
Fundraising
Endorsements
Signature-gathering campaign
Election campaign

The manual speaks primarily of the experience we have had in designing a statewide measure, but it certainly can be applied to local or regional areas as well. If you would like a copy, or would like more information on Proposition 70 or PCL, please contact PCL at 909 12th Street, Suite 203, Sacramento, CA 95814; 916/444-8726. There is a $10 charge for the Prop. 70 manual.

Conclusion

In an era where we continue to fight environmental battles and seem to expend huge amounts of effort to defend what we have so dearly won, Prop. 70 stands out as an *active* step by the people of California to help solve one of the most pressing environmental problems in the state: that of disappearing wildlife habitat, park and coastal lands and open-space areas. The ramifications of Prop. 70 are great. Not only will thousands of acres of natural lands be protected forever, but the coalition of support that made Prop. 70 possible also paves the way for future alliances that will continue to work together to protect our magnificent and irreplaceable natural resources — forever. ■

Out of the Ark and Into the World

BY JOHN QUINNEY

IN 1969, JOHN TODD, Nancy Jack Todd and Bill McLarney founded the New Alchemy Institute in San Diego, California. The organization's purpose was "to restore the lands, protect the seas and inform the earth's stewards." Over the years our research and education programs have included fish farming and hydroponics, solar greenhouse design and management (especially that based on our 2,000-square-foot bioshelter, the Cape Cod Ark), windmill design, energy conservation, energy-efficient building design, tree crops, organic gardening, integrated pest management and composting. This year, the New Alchemy Institute will celebrate twenty years' work on behalf of an ecological future. The highlight will be our annual Harvest Festival on September 16, 1989, with Francis Moore Lappe, and the accompanying celebration featuring hordes of ex-staff, interns, volunteers and friends. It should be quite a day.

Over the past twenty years, we have seen many environmental organizations come and go. Public support for ecological work has been strong at times, absent at others. The fields of sustainable agriculture, solar design, wind power and other appropriate technologies have changed dramatically. The amount of knowledge and experience now available is astounding compared with that of twenty years ago. Through it all, the New Alchemy Institute has survived, precariously at times, successfully at others. We have also changed, often testing the fuzzy line between ecological idealism and economic pragmatism. Throughout it all, we have grown and matured.

Things got really bad here in 1983-1984. Federal budget cuts were coming through, foundation money was very difficult to find and our budget dropped from $600,000 to less than $300,000. We were all being paid a fraction of our abysmally low salaries. At that time, a far-sighted foundation officer offered to provide partial funding to hire consultants to help us evaluate the past and restructure the organization. We accepted the offer. The subsequent process took a year or so. It was very, very difficult. The main results were an Institute structure that was less consensual and more hierarchical, and a narrowed agenda in research and education. Around this time, we also completed a Master Plan to reflect these priorities and to guide the development of our 12-acre Cape Cod site.

Four years later, our budget has increased to nearly $600,000 (of which $130,000 comes from earned income) and our work has changed in ways not always foreseen. Now, we often work outside the Institute — in commercial greenhouses, on farms,

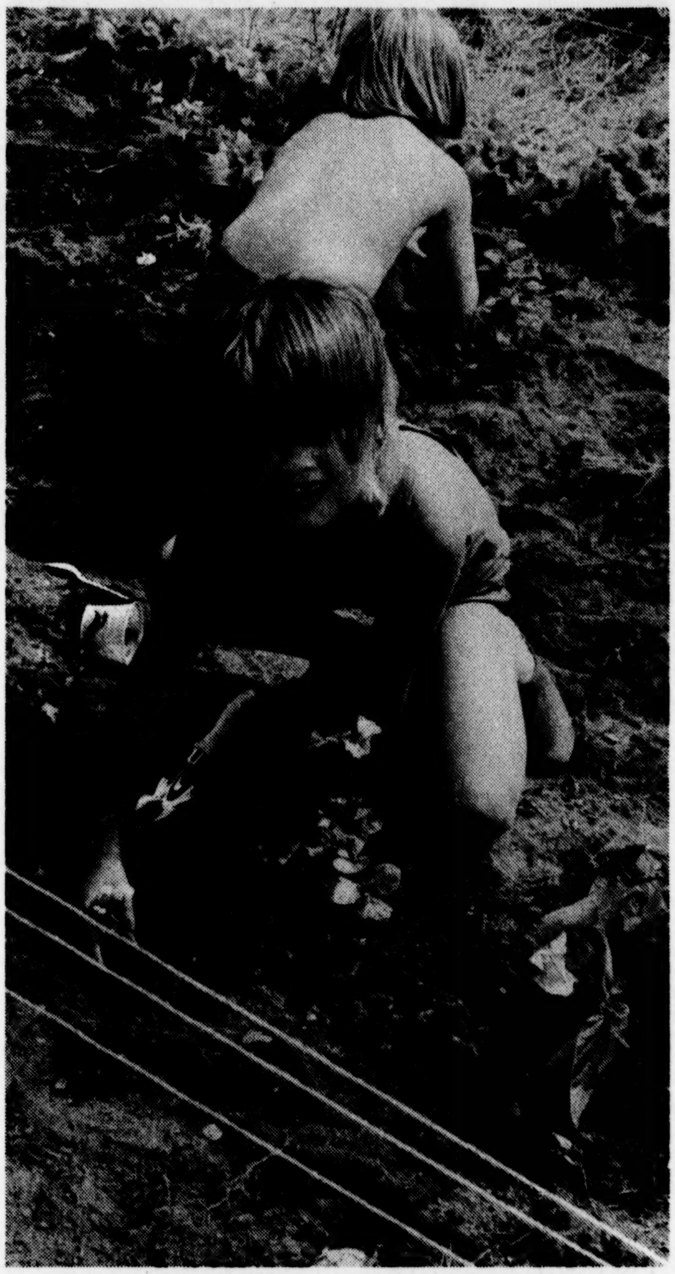
To be successful, we must cooperate with organizations and individuals who share some of our values but are constrained by the need to make a profit, to satisfy public opinion or to meet customer expectations.

The early 1980s found many eco-righteous demonstration centers failing despite an increasing need for their insights, inspiration and services. John Quinney directed New Alchemy through that difficult period, bringing the Institute to a new and effective professionalism. For information on publications, internships, semester programs and more, write NAI, 237 Hatchville Road, East Falmouth, Massachusetts 02536. —J. Baldwin

in schools and with state agencies. We are facing the next set of challenges: establishing ecological values within the commercial context. To be successful, we must cooperate with organizations and individuals who share some of our values but are constrained by the need to make a profit, to satisfy public opinion or to meet customer expectations. Looking back, we see that demonstrating ecological ideals within the environment of a nonprofit research and education organization was comparatively easy. The problems to be overcome were biological and technical, not economic. Unlike commercial growers, we don't have to make our living directly from our greenhouses, fish ponds, market gardens or leaf piles.

The title for this essay comes from a fundraising letter describing our experience with a small aphid predator, *Aphidoletes aphidimyza*, the gall midge. We first met these creatures in the Cape Cod Ark, where we observed them devouring plant-eating aphids. After further research and consultations with other *Aphidoletes* buffs, we began using them in commercial greenhouses as part of a state-funded program to reduce pesticide use in Massachusetts agriculture 25 percent by 1990. In late 1988, Colleen Armstrong, our greenhouse manager and research entomologist, was working with three commercial greenhouse growers on about 15,000 square feet of chrysanthemum crops. Her goal is to reduce pesticide use as much as possible while still producing marketable crops at a profit. In one greenhouse, she has reduced pesticide applications 75 percent; in the other she has been able only to replace the highly toxic pesticide, Temik, with some gentler compounds. In some instances, *Aphidoletes* and other biological controls performed well; in others they were less successful. Several more trials are planned this year. With each trial, we gain more experience on integrating biological and chemical controls with growers' requirements and resources. By the end of the year, we should have reduced pesticide use by an average of 50 percent on our crops. While this is significant, from our perspective it is only a partial success. Our long-range goal is to eliminate pesticide use entirely. We recognize, however, that the process is incremental, and will be complete only after many years' work.

In other agricultural work, we are closely involved with New England farmers, both conventional growers and those practicing sustainable agriculture. We have spoken at conferences on the same agenda as fertilizer salesmen and pesticide pushers; we have spoken to the converted. We have interested some conventional growers in our research and we have hosted field days on organic farms in Massachusetts.



Fourth-grade kids learn elementary science in New Alchemy's Green Classroom program, now in all Falmouth grade schools.

Currently, we are conducting on-farm research at several New England locations to test the performance of cover crops for weed control. We did not begin this work casually. In 1987, our research associate Mark Schonbeck spent several months reviewing the literature and interviewing fifty farmers and agricultural scientists before planning our research agenda. With very limited resources, we have to be sure that we are working on significant problems faced by the growers we are trying to serve. In this case, most organic growers, unable to use herbicides, told us that controlling weeds was their

We have learned not to confuse progress toward an ecological future with that future itself.

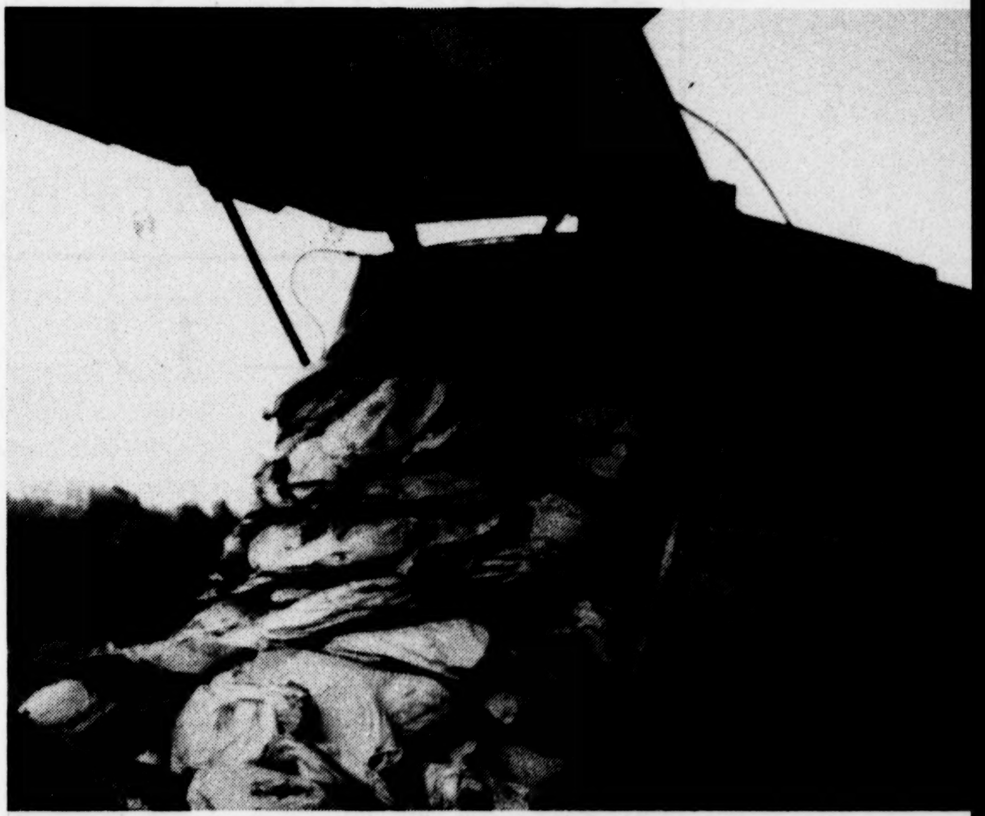
most serious problem. Cover crops can serve this function as well as protecting soil from erosion and, in the case of legumes, building soil nitrogen levels. Results from our 1988 trials will be available in mid-1989 when we determine weed growth in vegetable crops sown on sites previously planted to a variety of cover crops. This work is clearly farmer-driven research. In contrast to the work of some of the larger agricultural institutions, we are responsive to the needs of our farm audience. Farmers know best the problems they are facing. Our role is to ask questions, to listen, and only then to propose experiments.

In a similar demand-driven approach, and with support from our local school system, we are responding to the national problem of science illiteracy. A recent Massachusetts study showed that fourth-grade students in the state were highly motivated to learn science, but that by the time they had reached high-school age they were generally disinterested. Hardly a vote for conventional science education. As an alternative, our Green Classroom program is, this year, being taught in all 16 fourth-grade classes here in Falmouth. With organic gardens at each of the four schools, and a new curriculum for participating teachers, the Green Classroom is an innovative and activity-based approach to teaching elementary science. This program is managed by Judy Salisbury, who teaches as needed, and assists the teachers with pest control, cultivation, composting or classroom instruction. The Green Classroom is a great success — according to teachers, students, parents and school administrators — and we are beginning to expand it to other school districts. In a related project, we have begun installing classroom ecosystems, small indoor ponds and gardens designed by Earle Barnhart and Hilde Maingay to stimulate student interest in ecology. We have also completed a 30-lesson activities guide for use with the ecosystems.

In partnership with BioThermal Associates, we are also working with the Department of Public Works (DPW) in the Massachusetts towns of Newton and Yarmouth. We are providing technical assistance and training in leaf composting to town officials so that they can recover the 15 to 25 percent of landfill space occupied by leaves and yard wastes. At Newton in 1986, Bruce Fulford designed a leaf-composting program to handle the town's entire annual leaf crop of 4,000 cubic yards. Under Bruce's guidance, DPW staff mixed leaves, built windrows, monitored temperatures, aerated the piles, and eventually produced high-quality compost for use in local landscaping projects. At Yarmouth, we are establishing a similar operation and also conducting tests to determine the fate of pesticide residues on leaves and yard wastes. If these materials are unchanged by the 150°F temperatures reached during composting, they could contaminate groundwater.

These projects are all tied together by our commitment to an ecological future. They signal our intent to work cooperatively with schools, farmers and state officials. And they reflect our understanding of the iterative process by which most change occurs.

We have learned not to confuse progress toward an ecological future with that future itself. Clearly, much remains to be done. Our work will not be finished until greenhouse growers don't need pesticides, until every New England school has a students' garden, until Massachusetts residents compost all their own leaves, and until New England's farms are profitable and sustainable. Until that time, we expect to be busy. ■



The annual four thousand cubic yards of municipal leaf pickup used to be a landfill problem. Now, a New Alchemy-advised program turns leaves into useful — and salable — compost.

Photographs by Richard W. Brown

ADVENTURES OF AN APPLIED ECOLOGIST

OR SHIT HAPPENS

BY JOHN TODD

A detailed description of John Todd's careers would easily fill this magazine. Nevertheless, I asked him to abandon all modesty and describe some of the forces and insights that have driven his various pioneering enterprises. Note that it takes more than outrage, good ideas and demonstration projects to win the widespread acceptance that is needed to be truly effective.

You can read more about John's biological water-treatment plants in the Nov.-Dec. 1988 issue of Harrowsmith *magazine. To keep up with the project or for more information about it, write Annals of Earth, 10 Shanks Pond, Falmouth, MA 02540. For information on commercial or municipal applications, write to Ecological Engineering Associates, 1 Locust Street, Falmouth, MA 02540.* *—J. Baldwin*

DURING THE 1970s I was part of a social and scientific experiment known as New Alchemy. New Alchemy was, and still is, a small, not-for-profit "think tank" that created working models of agricultural and architectural systems based upon the teachings of nature (*CQ* #12). My time there convinced me that ecology would shape culture in the twenty-first century, that the next frontier lay in shaping economic life within an ecological framework. It seemed then, and still does, to be the only way to balance the needs of humanity and the dictates of the environment. Without such a balance our civilization would decay in its own poisons. The ecological imperative also seemed the only path to begin to right the inequities between rich and poor nations.

Ten years ago I embarked upon my first adventure into an ecologically oriented business. The energy crisis was in full swing and our product was to be magnificent modern sailing ships called Ocean Arks. To develop these advanced cargo ships I brought together some of the most modern concepts from naval and aeronautical engineering with the idea of helping forge a new age of sail (*CQ* #23). The ecological part of the business was that the Ocean Arks were to be true arks in the biblical sense of Noah's story, for they were to have on board the biological materials to

It now seems possible that ecologically engineered systems can restore our water where chemical engineering has so often failed.

culture and transport fishes, marine life, trees, ecological microcosms and food crops. The plan was to restore ravaged landscapes on a planetary scale. I planned a fleet that would ply the seas of the world selling high-priced biological products to wealthy nations and simultaneously provide a crop base for poorer societies. I saw the fleet as source of a global pool of information containing restorative organisms to repair damaged environments. I was working with new concepts of ship design, biological culture methods, and ecological restoration, and with their social and political implications.

With fifty thousand dollars of seed money we built a fifty-foot-long, one-fifth-scale proof-of-concept model and tested it off Cape Cod (see *Different Boats* by Phil Bolger). Some of the sail-propulsion concepts were exciting and worked well. Others were not so good. I was being innovative on too many fronts at once and investors became too nervous to go the next round. I had a dream of ships that would be working symbols for an age of ecology, but not a business. No number of MBAs could have made a business plan of what I had in mind. There were at least a dozen businesses in the plan and they were all fraught with risk. The idea was a financial flop — a "what-not-to-do" case in Paul Hawken's book *Growing A Business.*

But I couldn't get the oceans and coastal ecological economies out of my blood. I formed another not-for-profit organization, Ocean Arks International. Our logo was the sea turtle, a symbol of creatures who need both land and sea. This time round our scale of activity was small. Our focus was to help coastal fishermen of the third world whose economic fate was determined by unreliable fuel supplies, lack of spare parts, soft currencies and international debt.

The switch from traditional craft to modern gear and engines had, after the initial successes, impoverished millions of small-time fishermen. Our proposed solution was an ultra-modern, three-hulled sailing craft, the Ocean Pickup. It was fast and beautiful, and was to be built in third world villages from local materials. Epoxy glues were the only critical imported ingredient in the Dick Newick-designed craft.

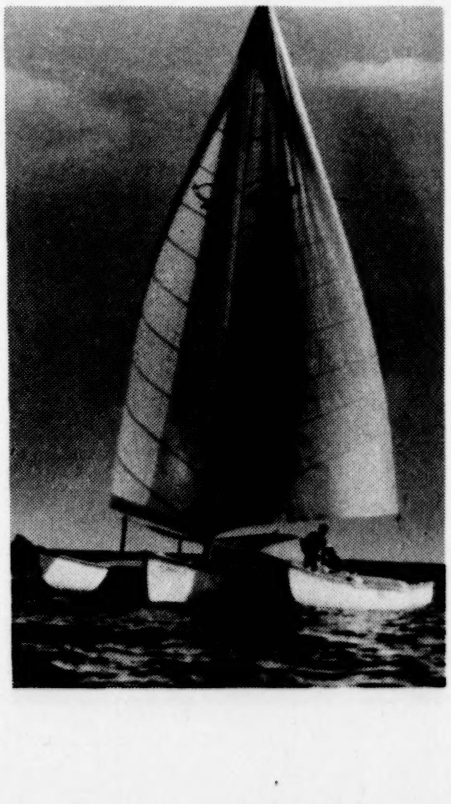
We built the prototype in New England. It was 32 feet long. In 1983 I sailed it to Guyana in South America and the following year to Costa Rica in Central America (CQ #41). With local fishermen we worked to reintroduce sail power and develop environmentally responsible fish-capture methods. I learned a lot about how difficult it is to eke out a living from the sea. Our own finances nosedived as I could not persuade international development agencies or allied foundations to become interested in Latin American fishermen. I borrowed money to keep the project alive. So did our institution. My teenage son Jonathan worked for expenses as captain. His friend, Rob Robinson, now an accomplished boat builder, was in charge of technology transfer, but on a national level, we lacked political and financial clout.

When our financial resources began to improve most of the money went to securing the legal right to undertake coastal research in Costa Rica. Small is not beautiful when it comes to research vessels achieving recognition by the appropriate authorities. We decided to join forces with the marine research center at the University of Costa Rica and the project continues in this mode, but on a modest scale and a far cry from the integrated approach to coastal development I had envisioned with the Ocean Pickup as one component linking reforestation, marine farming and agricultural diversification. Of course, it may happen yet.

At this juncture I began to turn my attention towards New England. My experience had taught me that third-world people don't want any part of what they perceive as second-class technologies but respect those of the mainstream of industrial cultures. And by then the time seemed right to test my ecological business ideas in that mainstream. To be successful, a new kind of environmentally responsible wealth had to be created and the technologies to do so had to be accessible not only to the capitalist, but also to the peasant farmer on the hillsides of tropical America.

With two friends I formed a for-profit corporation to develop ecological technologies. It was to be a hybrid between a design studio and commercialization organization. We targeted ocean farming, wastewater purification and "smart" houses as potential areas to develop. One partner was an architect who had started a windmill-manufacturing business

Small is not beautiful when it comes to research vessels achieving recognition by the appropriate authorities.



The 1½-ton Ocean Pickup: great idea, badly needed, well-developed and ready for production, stalled by politics.

One of our greatest challenges will be to gain acceptance of state regulatory agencies which are unfamiliar with trees, flowers, marshes and fishes in wastewater treatment facilities.

The solar-aquatic wastewater treatment plant at Sugarbush, VT, looks and smells like a botanical garden.

and the other, a liberal-arts major with experience in a small woodworking company and the windmill business. I was able to find seed capital from two friends and we hired one of the partners to run the company.

Our course was chartered by my personal response to an impending local crisis. The drinking water of Falmouth, my town in Massachusetts, had deteriorated badly and our cancer rates were climbing alarmingly. The necessity of buying bottled water to help protect me and my family raised a problem I couldn't get out of my mind. Water is the basis of all life. I reasoned that the quality of water determines the quality of life from amoeba to butterfly to human. Thousands of toxic and cancer-causing substances are entering the planetary waters each day. Reflecting on the state of the water reorganized my priorities. For over fifteen years, beginning at New Alchemy, I had raised fish and had learned innumerable tricks to purify water in order to keep the fish healthy. It seemed logical to use the same biological techniques and apply them to purifying water, sewage and other waste streams. An ecosystem approach, while dramatically different from conventional waste engineering, seemed to me to be the best long-term solution to upgrading water quality not only on Cape Cod, but throughout the country.

As it turned out, it was the nonprofit structure of Ocean Arks International which provided the bulk of the support for the new direction. Ecological water purification was too risky for venture capital, which unadventurously waits until risks are minimized or eliminated. But several environmentally concerned foundations liked our ideas for greenhouse-based sewage-purifying ecosystems and backed the construction and operation of a fifteen-thousand-gallon-capacity prototype at Sugarbush, a ski resort in Vermont. Without the foundation help our eco-technology plans would still be in the drawer.

The Vermont facility became the base for a number of breakthroughs in waste treatment. The ecosystems we designed removed toxic ammonia even during the extreme cold of a northern winter. Trout and smallmouth bass were integral to the system and they grew and thrived. Residual sludge was incorporated into the food chains leaving only modest amounts of sediments which were very low in volatile organic matter. This was important as sludge removal and deposition from conventional sewage treatment plants is reaching crisis proportions. Our ecological technology in Vermont created a beautiful, sweet-smelling aquatic environment in which wastes are transformed into pure water, plants, fishes and diverse life forms. No hazardous chemicals were used in the process.

In 1988, I subsequently designed and the Ocean Arks staff built a prototype aquatic ecosystem for the town of Harwich on Cape Cod to treat cesspool or septage wastes which are pumped by honey wagons from septic tanks into holding ponds. Septic wastes are as much as one hundred times more concentrated than sewage. No conventional current technology does a good, cost-effective job of treatment. Toxic substances, restaurant fats and greases, and industrial and hospital waste products wreak havoc with normal bacteriological processes.

We used complex, photosynthetically based ecosystems to absorb toxic shocks and organic loading. To our great pleasure, tertiary-quality water was the end product. Fecal coliform levels in the effluent were as low as one one-hundredth those allowable for swimming water. Nitrate levels were below well-water standards. In testing for toxic compounds, we found that fourteen out of the EPA's hit list of fifteen volatile organics were entering the system, three in very high concentrations. After ecological treatment, of the fourteen, thirteen were 100 percent removed and the last, toluene, was 99.9 percent eliminated. The fish at the downstream end of our facility were free of aromatic hydrocarbons, PCBs, and dioxins. The Harwich experiment was a real turning point and has given me real hope. It now seems possible that ecologically engineered systems can restore our water where chemical engineering has so often failed.

By the end of last summer, Harwich had become a Mecca of sorts. Visitors from as far away as Scandinavia and Yugoslavia turned up. Long Island politicians helicoptered in and Massachusetts Lieutenant Governor Evelyn Murphy toured the facility. (Governor Dukakis was scheduled to appear during his campaign but on the scheduled day of his arrival environmental issues were replaced by national security concerns.)

The business community appeared at the Harwich dump as well, and there were signs of interest in backing a commercial enterprise. I was unable to evaluate these potential resources or to ascertain the price of their collaboration. The time had come for a wise soul who was also a tough and successful businessman. One friend flew in from Seattle to look the situation over and reported we were vulnerable on almost every account. Vital proprietary knowledge was not tied down, and our business plan did not reflect a powerful strategy for getting into an area dominated by large engineering firms and chemical and mechanical vendors. In waste management, profits are made in hardware and construction, not on ecological software. Even with sound financing we might not get anywhere against the industrial Goliaths. We did have a new technology that the world urgently needs, but major technological change requires a lot of horsepower. Our friend saw that one option available to us might be to carve a small niche treating sewage for ski resorts and other such small developments with water problems.

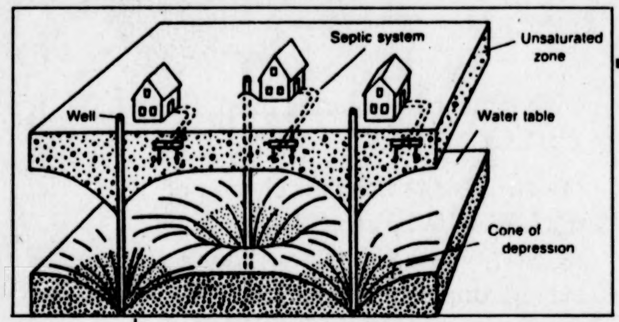
Then in August I met a man who was to change our direction. He was a successful businessman and innovator who felt the next big challenge lay in biology. He was a keen student of ecology, particularly microbial ecology, and felt — rightly — that microbial ecosystems are the real workhorses of the planet. At Harwich he saw ecology applied and directed towards a given and useful end. I explained to him the essentials of healthy water and he explained to me the essentials of a business in terms of legal, financial, structural, and planning options. The two "ecologies" were equally complex, but somehow linked.

We formed a partnership and established Ecological Engineering Associates, with a mandate to finance, build and operate wastewater facilities and to assure water quality on behalf of communities. As of this writing we hope to begin a long-range project in the town of Harwich, which hosted and helped finance the septage experiment. One of our greatest challenges will be to gain acceptance of state regulatory agencies which are unfamiliar with trees, flowers, marshes and fishes in treatment facilities. The president of EEA is Susan Peterson, a savvy anthropologist, a former associate director of Ocean Arks, and a principal, with her husband John Teal, in a crack environmental consulting firm, Teal Ltd.

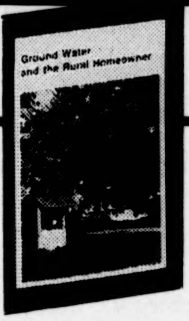
My own part in this new chapter of the story is to be an ecological designer. My associates know I don't belong running a company. I am working on ideas to deal with sludges, including those of New York City, and on new ecological technologies to pre-treat drinking water on a city-wide scale. I am also devising applied ecosystems to grow foods. But even when I meditate on issues of scale, my instinct is to devise local solutions and help empower communities. Then I reflect on water and the amount of time left to us and I conclude we need to act on a large scale too. I remember Fritz Schumacher, the author of *Small Is Beautiful*, once telling me that his views were framed by a world which was dominated by multinationals, but if he found himself in a very parochial world he would have favored multinationals. To him it was a question of balance. These days feedback from the environment is telling us that we need to create change at many levels, from restoring our awareness in the forces of nature to creating profitable water-purifying utilities. We hold the earth in sacred trust and we need to get good quickly at healing the scars. ■

Wastes are transformed into pure water, plants, fishes and diverse life forms.

John Todd checks a tank of water-cleaning hyacinths at his Harwich, MA experimental sewage-treatment facility. Healthy fish in tank indicate system effectiveness.



Effect of concentrated housing on ground-water level.



Ground Water

City dwellers moving to the country make new acquaintances, and one of the first will be their well. Altho trial and error will educate a new well owner, this little pamphlet can assist the learning curve. It discloses first principles of water movement, aquifers and wells. Should any of these matters be in your future this primer will introduce the basics. A worthwhile bibliography of more advanced reading is also included.
—Dick Fugett

Ground Water
(and the Rural Homeowner)
Roger M. Waller
1988; 37 pp.
free from:
U.S. Geological Survey
Federal Center, Box 25425
Denver, CO 80225
303/236-7476

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Another reason that wells "go dry" is the lowering of the water table by increased pumpage in the immediate area. Housing developments with small lots and individual wells have been built in many rural areas. If the aquifer is low yielding so that pumping creates a large drawdown, a cone of depression will develop around each well. Thus, several domestic wells close together can create a steady lowering of the water table if pumpage exceeds the natural recharge to the system (unless the withdrawn water is returned to the aquifer through septic systems). A third major reason that rural wells "go dry" is the installation of larger capacity wells for municipal, industrial, or agricultural purposes adjacent to residential areas. The increased withdrawals may cause large widespread cones of depression that intersect one another and cause general water-level declines that affect nearby domestic wells.

Adopt-A-Stream

The more people, the fewer fish, is how it usually goes. People tend to abuse streams — often inadvertently — with a comprehensive menu of pollutants. Free-running streams are dammed, channeled, and piped. Extensive building and pavement speed rain runoff to the point where fish eggs are washed away.

In 1981, Tom Murdoch decided to see if he could improve the situation. As an official of Snohomish County, WA, he began a modest program of support for community groups and schools that were interested in watershed stewardship. He called it Adopt-A-Stream. To date, 31 schools and 24 community groups have joined Adopt-A-Stream programs of stream enhancement. Teacher workshops have trained more than 200 teachers in the Adopt-A-Stream principles. They, in turn, have brought Adopt-A-Stream programs to something like 20,000 students.

In 1985, Adopt-A-Stream left its government parent and became the Adopt-A-Stream Foundation. It's an international affair, including states and countries of the Pacific Rim. Already, there's a lively exchange of ideas (and students) between Washington State and the Japanese Come Back Salmon group. It seems certain that Adopt-A-Stream programs will spread across the U.S.

To hasten that process, the foundation has just published a handbook, ***Adopting A Stream****. Though specifically aimed at Pacific Northwest*

Gray Water Use in the Landscape

Waste has always been synonymous with the American lifestyle, and our use of water is no exception. Altho government policy wastes water it isn't necessary that the individual do the same, so as agribiz empties aquifers it's possible for individuals to conserve their own.

Despite our American lifestyle, middle-class sanitation hangups and archaic health codes, "gray water," anything that's not sewage, is still useful, even tho it may have just finished washing your dishes. Robert Kourik, author of the ***Edible Landscape*** *book (****WER #52****), gives us some practical ways to convert household plumbing to a gray-water system, diverting water that used to go down the tubes to irrigation instead.*

Kourik's pamphlet is based on his experiences during the last California drought, when he struggled with a bureacracy that briefly relaxed the rules to permit legal experimentation. It's conservative, but will guide the conversion of a home plumbing system into a home irrigation system, a subtle form of un-American behavior that your local aquifer will appreciate.
—Dick Fugett

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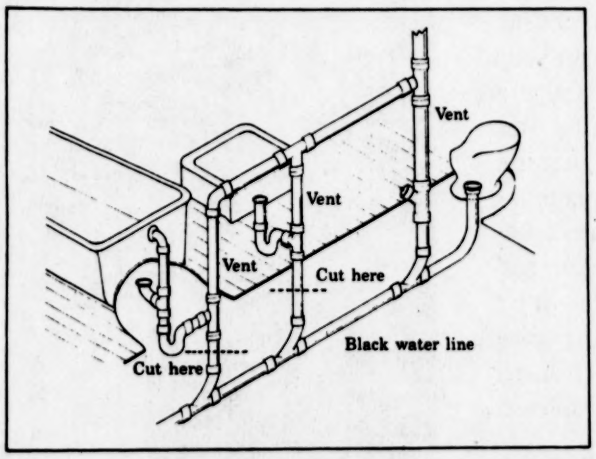
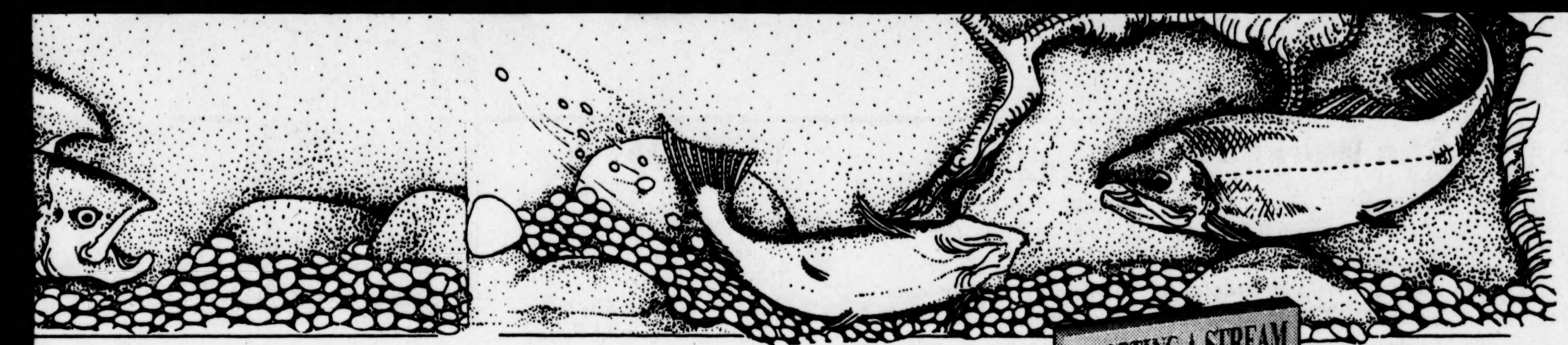
Once you've begun to use gray water, you must think more carefully about what goes down the drain. Many common household and bathroom cleaners are potentially rough on plants. Simply put, you must get back to basics, and use only simple soaps, detergents, and "elbow grease." Soaps are safer since they usually have less sodium than detergents. Avoid all modern detergents with claims of softening, whitening, and "enzymatic" powers, as well as bleaches in all forms. Especially harmful are cleansers or detergents with boron, a substance which can quickly build up to toxic levels.



Be sure to cut into the existing plumbing *after* both the vent and the U-shaped trap.

Gray Water Use in the Landscape
Robert Kourik
1988; 25 pp.
$6
postpaid from:
Metamorphic Press
P. O. Box 1841
Santa Rosa, CA 95402

GRAY WATER USE IN THE LANDSCAPE



readership the principles will work just fine in most of the U.S. and anywhere else streams need enhancing. It starts with the basics of stream ecology and the effects of human activity, so well written and illustrated that the chapters could be used directly as a lesson plan. Then comes the real meat of the book: how to go about adopting a stream. The instructions are there, detailed right down to suggestions as to how media coverage should be arranged. Inspiring examples follow. I am particularly impressed with the effectiveness of grade-school kids — some classes have brought salmon back to streams that have been barren 25 years! The last few pages present a glossary, an extensive, up-to-date bibliography, and a list of useful names, addresses, and services.

***Adopting A Stream** is not only a great handbook, it is a model of what a handbook can be. It is a call to action.* —J. Baldwin

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We tend to devalue urban streams because many of them have lost their pristine beauty, and stretches may even seem lifeless. But all of them once ran clear, and many supported healthy fish populations. City creeks offer great potential for clean-up projects, water quality improvements, or restoration of salmon runs. Few school or neighborhood adopt-a-stream projects are more satisfying than rejuvenating a damaged urban stream.

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Everyone who lives or works in the same watershed is interconnected, in an intimate and tangible way, with every instream animal and every other person or animal that depends on the watershed's streams and groundwater for drinking or waste removal, or for industrial processes, hydroelectric power, or irrigation. We are intimately connected, in fact, with every animal, plant, and grain of mineral in our entire watershed.

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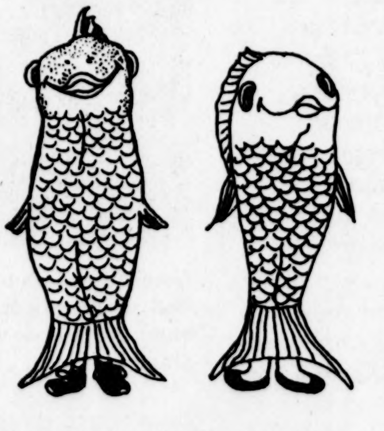
"Over the past eight years I've run 1200 to 1400 kids through the program," Bayes relates, "and of course that gets some of the parents involved, too. The number of fish we add to the stream is no big deal, but the educational value to the students and to the community is immense. I think the most rewarding thing of all is having ex-students calling up six or seven years later from another town, inquiring about a stream problem there and what to do about it. It's good to see the stream ethic spread." . . .

Part of F.I.S.H.'s public awareness campaign has been informing people about the impacts of dumping antifreeze and used motor oil down storm drains. Bothell High students also joined Woodinville High School students to create "Sally Sockeye" and "Cathy Coho" — two salmon costumes — to wear when explaining salmon life cycles to elementary school students. "Sally and Cathy" have also appeared at city and county council hearings to ask "why aren't land use regulations that are intended to protect streams and watersheds being enforced?" Schultz agrees with other adopt-a-stream "parents" that "if you don't raise the awareness of the community and the interest of government agencies, planting fish is all for naught."



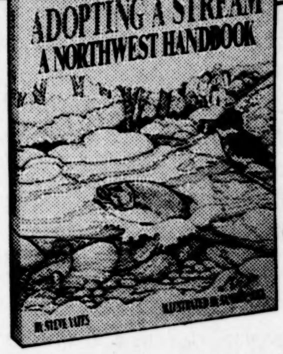
Sally Sockeye and Cathy Coho.

●

One valuable experience is to drive (or bicycle) around the stream's immediate watershed, stopping at access points, especially upstream of the stream section you plan to adopt. This tour will give you a feel for the land uses affecting the stream, the condition of the riparian zones, and the number of landowners or user groups affected by your project.

●

"The students have been incredibly enthusiastic about the Connelly Creek project from the beginning," says Scherrer. "Not only have they learned about aquatic and wildlife biology, but they understand so much about how people and wildlife interact in the watershed. They now have a strong feeling of stewardship toward the fish, the stream, and the entire watershed."

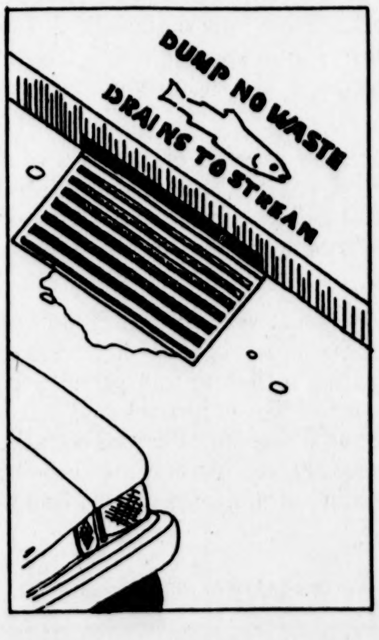


Adopting A Stream
Steve Yates
1988; 116 pp.
$9.95
($12.95 postpaid) from:
University of Washington Press
P. O. Box 50096
Seattle, WA 98145-5096
800/441-4115
or Whole Earth Access

●

Newspapers and broadcasters, of course, are not in the business of providing free publicity. But they *are* in the business of providing stories that are of interest to their readers, watchers, or listeners. They will usually be glad to cover events or issues that fit the following criteria. . . .

The story should be *unusual* or be contrary to expectations. Salmon returning to a once-polluted creek is unusual; an annual return is not. A successful volunteer stream rehab project led by fourth graders or a motorcycle club will naturally be considered more interesting than a similar project done by a public works crew. Positive, upbeat environmental stories with new slants are always welcome.



Storm drain stencils remind citizens to protect streams.

The Workbook

One of the most significant developments in social-change movements in this decade has been the common perception among peace, environmental, and social-issue activists that their causes are inextricably linked: for example, "environmental" groups like Epoca are doing community development work in Central America with the belief that peace is the first step toward ecological restoration. And gay and lesbian organizations are joining the peace movement in greater force because they see the direct connection between military spending and lack of funds for AIDS research. The strength of Jesse Jackson's 1988 campaign indicates that these new coalitions are definitely coming of age.

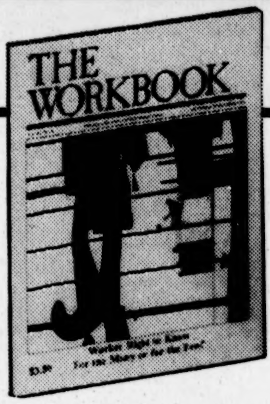
***The Workbook**, published by the Southwest Research and Information Center, has covered this broad, interrelated range of concerns for over a decade. In fact, we are long overdue in reviewing it. Each issue features a long research article and related further-reading reviews, and a core section of reviews by their specialty editors of new books and publications in education, economics, nutrition, third world issues, the environment, women, work, and more. **The Workbook**'s greatest service is that their reviews include special reports from research institutes and universities that you probably wouldn't hear about anywhere else — with ordering information. Highly recommended.* —*Jeanne Carstensen*

•

[The National Committee for Responsive Philanthropy's report, *Charity Begins at Work*] traces the emergence of United Way as the all-but-exclusive solicitor of funds at the workplace and the development of the perception that United Way and payroll deductions are one and the same thing. It also explains how United Way's ingrained conservatism — it was created by business and is supported by business — prevents it from sharing its largesse with social justice groups or with the hundreds of new organizations that represent minorities, women, children, the handicapped, and others who have suffered years of discrimination and neglect. "The United Way allows its agencies to deal only with the effects of problems, never their causes," a former United Way official is quoted as saying. "Quite simply, the United Way is afraid to offend the corporate leaders who provide its money and sit on its board of directors." . . .

> United Way's close ties to business can . . . determine which groups get funded. In the Carolinas, the Brown Lung Association, a group of textile workers disabled from breathing too much cotton dust, was refused United Way funding because of United Way's close ties to the textile industry, according to United Way board member Woodrow Ginsberg. He told the *Washington Post* that "one of the reasons textile companies like to put their executives on the (United Way) boards is so they can keep groups like Brown Lung from getting any money."
>
> —*Charity Begins at Work*

The Workbook
Julie Jacoby, Editor
$12/year
(4 issues) from:
The Workbook
SRIC, P. O. Box 4524
Albuquerque, NM 87106
505/262-1862



Garbage Management in Japan

What would a successful recycling program look like? Like one in Japan. The Japanese have reached a 95-percent recycled rate on some things, and are now recycling commodities we are still drinking — such as mercury, which they recycle by separating batteries, thermometers, and fluorescent lights. There are some historical factors not present other places that help Japan (they ran out of land centuries ago, and have to import anything they don't recycle), but as this report makes clear, despite the most advanced technology, the Japanese view recycling as a social fix. Their recipe: apply education, rather than machines. Further details in this book. —*Kevin Kelly*

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Recycling is Japan's "most desirable" waste management method. There are five reasons for the importance and the extraordinary success of recycling: 1) a long history of recycling; 2) the country's enormous reliance on imported primary raw materials; 3) the need to control pollutants from landfills and incinerators; 4) government support; and 5) a wide-ranging public education program.

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The country recycles about 50% of its paper. For each ton recycled, the Japanese estimate that 20 trees are saved. In 1983 Japan recovered more than 9.1 million tons of paper, saving over 180 million trees.

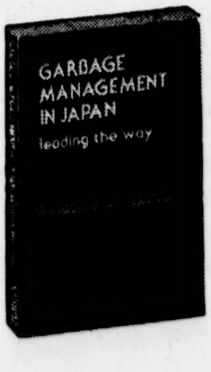
•

Mari Hatano lives in Shiga Prefecture near the city of Kyoto. She must separate her household waste into six categories, including four put into kitchen bags: paper and kitchen waste, plastics and incombustibles, glass, and cans. These items are collected on different days of the week. Pickup is not at her home but at a centralized collection point approximately one block away. Newspapers and magazines are collected door-to-door by a citizens group and bulky waste is picked up at her home once each month. Mari says that separating waste is extra work and she doesn't particularly enjoy doing it, especially after working all day and coming home late — but she does it nevertheless. There are no fines or penalties for not complying with the rules but people, in general, do. As Mari told INFORM, she "wants to see her prefecture clean." She wouldn't even think of not doing it.

Greenhouses and other amenities — such as swimming pools and community centers — are usually offered to citizens by municipalities as inducements to accept garbage-burning plants.

Garbage Management in Japan
Allen Hershkowitz
and Eugene Salerni
1987; 131 pp.
$15
($17.50 postpaid) from:
Inform, Inc.
381 Park Avenue South
New York, NY 10016
212/689-4040

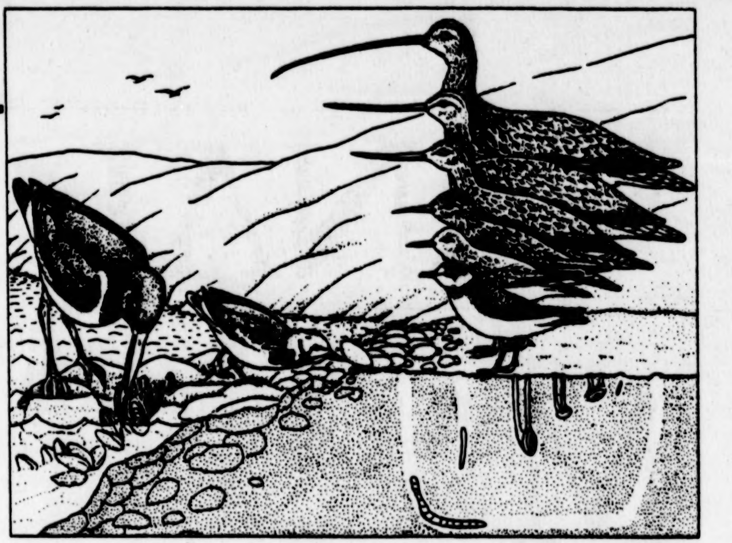
or Whole
Earth
Access



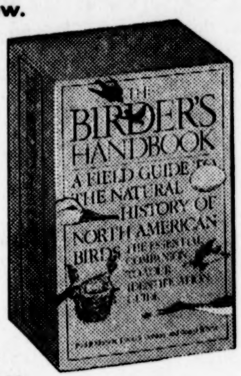
The Birder's Handbook

Paul Ehrlich and company have filled an ecological-book niche that has long been waiting to be occupied. There is compelling evidence of thorough and meticulous research throughout, yet all of the information is presented with the refreshing sense that it is only the best we have to date . . . it is not etched in stone. The authors solicit the reader/field observer to add to the scientific body of information on the birds of North America. They recognize that the story will change and be updated as more information arrives from careful field work, and they make it clear that we can all participate in that process.

To me this is not a field guide; it is a large (2" thick, too large for the field) softcover book set up with "species treatments" on the left-hand pages, and a wealth of entertaining and educational essays on the right-hand pages. It is to be used after you have identified the bird. It will then take you on a fascinating informational journey that no other field guide could or would take you on. It tells you dozens of things about the bird in question that "fits your bird into the 'big picture' of avian ecology, behavior, and evolution." It cites references at every turn, and gives you the tools to understand much more about the birds you're observing. I think it's a must for anyone who enjoys birds. —*"Captain" Walker*



Left: American Oystercatcher opening mussels. Center: Ruddy Turnstone foraging under rocks. Right, bottom to top: Semipalmated Plover (searches surface); probing species that forage at different depths — Sanderling, Red Knot, Greater Yellowlegs, Marbled Godwit, Long-billed Curlew.


THE BIRDER'S HANDBOOK
A FIELD GUIDE TO THE NATURAL HISTORY OF NORTH AMERICAN BIRDS

The Birder's Handbook
Paul R. Ehrlich, David S. Dobkin, and Darryl Wheye
1988; 785 pp.
$15.95
($17.45 postpaid) from:
Simon & Schuster
Attn.: Mail Order Sales
200 Old Tappan Road
Old Tappan, NJ 07675
201/767-5937
or Whole Earth Access

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The Blue List
In 1971, the National Audubon Society's ornithological field journal, *American Birds,* began publishing a list, the Blue List, to provide early warning of those North American species undergoing population or range reductions. The Blue List was designed to identify patterns of impending or ongoing serious losses in regional bird populations, not to duplicate the function of the U.S. Fish and Wildlife Service's Threatened and Endangered Species List. Many species on the Blue List remain locally common, but appear to be undergoing noncyclic declines. In contrast, by the time a species is officially listed as Endangered, it often is on its last legs. . . .

Radio Astronomy • Amateur Radio Astronomer's Handbook

In addition to all the man-made signals in the air, there are natural radio emissions as well. When a thunderstorm roils in the Gulf of Mexico, its lightning causes shortwave static over most of the hemisphere. The ionosphere flutters and crackles in the solar wind, which itself is a roar at higher frequencies. Jupiter pings, and mysterious "shadows" fall across parts of the radio spectrum (due to sunspots? meteors? geomagnetic storms?). For people interested in these phenomena, there's the Society of Amateur Radio Astronomers. Their 24-page monthly journal, ***Radio Astronomy*** *— nowhere near as posh as* ***Sky & Telescope (EWEC*** *p. 8) — focuses on receiver and antenna/dish construction, observation and recording techniques, and brief project reports. As a service to their members, they also maintain "SARALAB," where radio-astronomy equipment is repaired, calibrated and developed. Their annual symposium is usually held at a major professional radio-telescope installation.*
—*Robert Horvitz*

And there's also ***The Amateur Radio Astronomer's Handbook****, which nicely covers the basics of the craft in theory and practice. By practice, I mean that a person without a Ph.D. in the subject can actually make radio telescopes that will permit worthwhile and perhaps even fascinating observations. Written for the absolute beginner, I assure you, or I wouldn't be able to write this comment with a straight face.* —*J. Baldwin*

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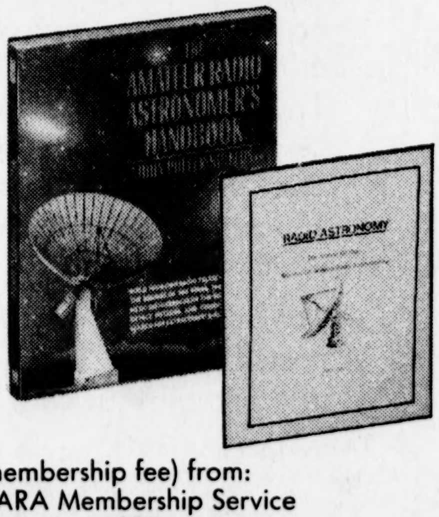
One of the major difficulties in observing meteors is that it is impossible to observe them visually during daylight hours. This problem is solved by using radio techniques to observe and count meteors and meteor-scattering events. . . .

A method of detecting meteors makes use of a commercial radio broadcasting station in conjunction with a standard FM receiver. The FM receiver is tuned to an FM broadcasting station that is located over the earth's horizon. Since the FM station's signal is VHF, it will travel skyward, rather than follow the curvature of the earth. But a meteor shower will act as an artificial "ionosphere," bending the transmitter's signal around the curvature of the earth to the receiver. The amount of signal returned to the receiver will depend on the number of meteors.
—*The Amateur Radio Astronomer's Handbook*



The Amateur Radio Astronomer's Handbook
John Potter Shields
1986; 104 pp.
$19.95
($23.90 postpaid) from:
Crown Publishers, Inc.
34 Engelhard Avenue
Avenel, NJ 07001
201/382-7600

Radio Astronomy
R. M. Sickels, Editor
$20/year
(12 issues; included in membership fee) from:
SARA Membership Service
P. O. Box 6020
Wheeling, WV 26003

ANAI: Idealism Survives in the Humid Tropics

by Bill McLarney

MY ASSIGNMENT HERE is to pat ourselves on the back — to explain why ANAI, in contrast to so many of the small, idealistic nonprofits founded in the seventies, is a "success" — and in a physically and economically difficult environment at that. Years of grant-proposal writing having deadened most of my natural feelings of modesty, I accept and will defend our nomination as a success, but in a manner somewhat more personal than we permit ourselves in proposals.

One thing we soft-pedal in proposals has to do with different kinds of success. If who you want to be is, say, Steve Jobs, then technical and organizational success may well go hand in hand with personal success of the kind my parents wished for me. But if your endeavor is idealistic, you'd best be prepared to live a little lower on the hog. In terms of salaries, benefits and job security any of us at ANAI could do as well dispensing rainforest beef at some fast-food franchise.

We don't mention that aspect in proposals because of what has become of many of our erstwhile cohorts from the seventies. They now wear neckties and sit in the comfortable offices of the organizations which receive our proposals. Nothing wrong with that — philanthropy, bureaucracy and for-profit business will be with us for some time yet, and often perform good works. But our friends who own multiple neckties sometimes get a wee bit defensive about their affluence and comfortable offices when reminded of how the muddy-boots set are remunerated.

Though we may not have foreseen it, those of us who pioneered the "Alternatives Movement" in the seventies would come to a crossroads. One road led to bureaucracy — joining or evolving into a "big" organization capable of moving large amounts of money and people. The gratifications of this road are obvious. Less obvious is the apparently ineluctable law that large do-gooder organizations must spend a high percentage of their budgets on non-essential trim.

The bumpy road less taken, which should be posted "fanatics only," leads to a high level of economic efficiency within a deliberately limited area. If the high road may be likened to the R and D department of a large industry, the fanatics' road is like the inventor in the garage, hoping first that the gadget will work, second that it will be used, and finally that it will help him make a decent living.

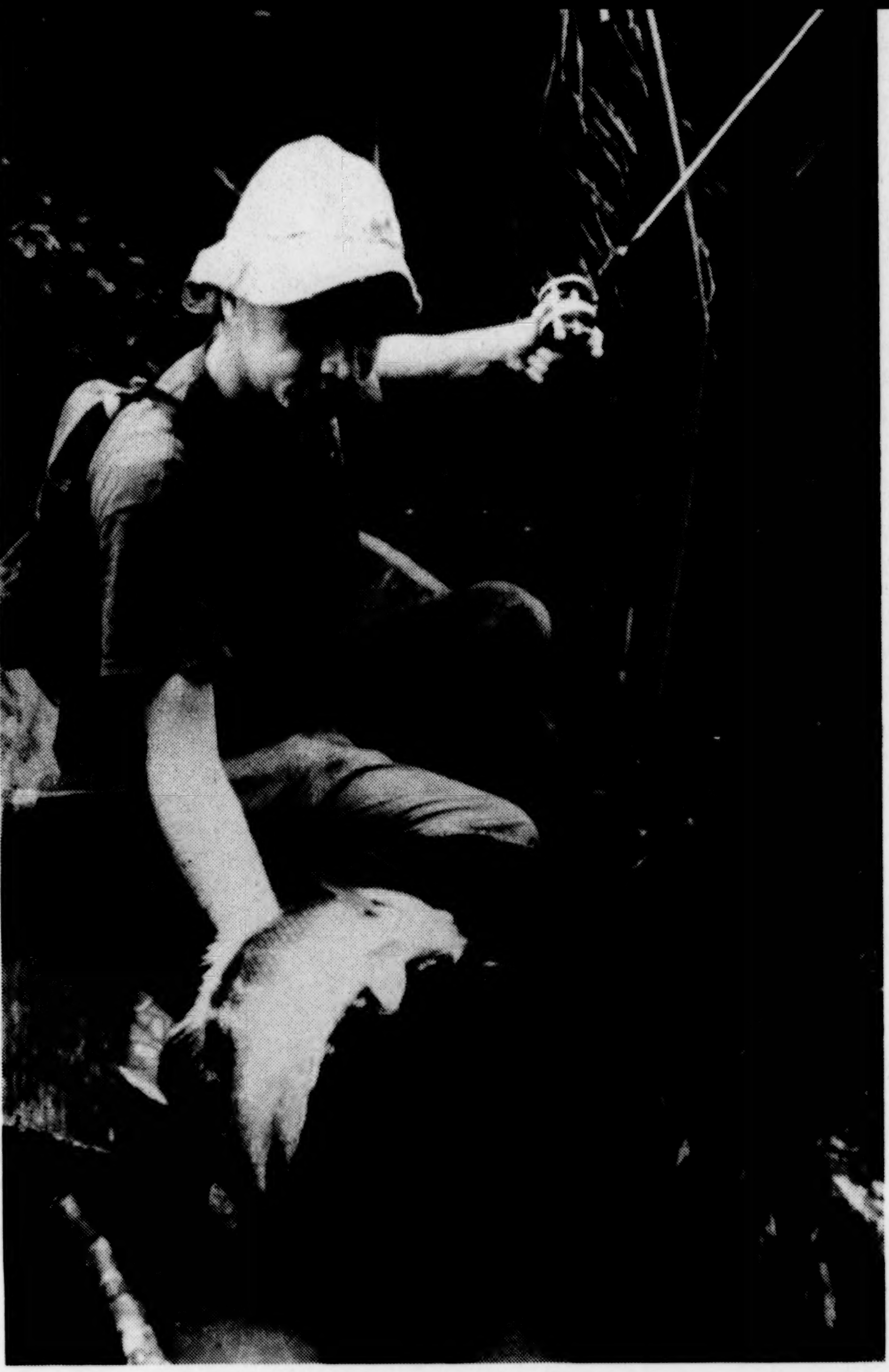
ANAI has reached the second objective. Not only do our ideas — some of them, anyway — work, other people and organizations are beginning to borrow and adapt them, and we find ourselves being cited as among the few who are actually implementing "sustainable development."

Our agroforestry project, which has assisted some 1,500 farmers in Costa Rica's canton of Talamanca to plant some 2 million crop trees, is being emulated in other parts of Costa Rica, and in Honduras and Belize. Though none of us were trained as organizers, the fact that farmers in 25 communities have worked together voluntarily one day a week for over three years has brought students of community organization knocking on our door. Our land-titling project, already successful in accomplishing its stated goals, is beginning to be studied as one of the first efforts to link peasant land tenure and wildlands conservation. While sustainable development is all the rage these days, it is being realized that Talamanca is one of the few places where such seemingly disparate elements as a wildlife refuge and a marketing cooperative are being fused into a coherent whole, based on an idealistic vision of the future and a lot of hard work in the present.

None of this would have happened without the kind of fanaticism that perversely finds more pleasure rattling down the bumpy road with a toolkit behind the seat than in cruising

Nicaragua
TALAMANCA
Costa Rica
Panama

Aquatic biologist Bill McLarney is a founder of both the New Alchemy Institute on Cape Cod and the Costa Rican ecodevelopment group, ANAI (formerly, formally, Asociacion de los Nuevos Alquimistas). When not working in Costa Rica, he occupies himself with freelance writing, environmental conservation work and fishing at his other home in western North Carolina. —*J. Baldwin*



Always a man who knows how to keep things in proper perspective, Bill McLarney shows the amateurs how the pros spend lunch hour. He advises, "Never trust a man who owns more than one necktie."

the four-lane with a AAA card in one's pocket. I unblushingly credit myself as the first fanatic. The proper way to found an organization is to rent an office, hire some administrative help and then set up field projects. ANAI began with a swampy "farm" purchased for 471 dollars and a wild-cane shack with no floor.

MY FIRST CO-FANATIC was ANAI's neighbor Jeronimo Matute, prominently featured a few years back in *CoEvolution Quarterly* [#40, p. 64]. As I wrote in the first ANAI Annual Report, "Whatever wild dream I could conjure up for our baby institute, Matute could produce a wilder one. Very few people would have been capable of sitting on a stump on a dirt floor, in a cloud of mosquitoes under a leaky roof, and expounding grandly on 'El Instituto' which our leaky edifice housed. I needed that oblivious-to-present-reality vision." Later, after we became able to pay Matute a modest salary, that salary was reduced rather drastically through a clerical error. We never heard about it from Matute. He simply assumed times were hard and we had cut wages across the board — and kept working as hard as ever.

Similarly, since Jim Lynch and Bob Mack came on as co-directors, they have never been unwilling to forego part of their salaries if necessary. More than once the ANAI office and experimental farm have run out of their pockets rather than from grants destined for such purposes. And their efforts never cease. I perversely cling to some elusive dream of a "normal" life. It may be that they do not; often their energy commitment is embarrassingly in excess of mine.

I found Jim and Bob. Among the people they found was Alberto Salas, who works double-time for a modest full-time salary as coordinator of our wildlife conservation and land tenure efforts. He in turn has been an amazingly successful "talent scout" on the campus of the National University.

Our paid staff at last count numbered 25, plus assorted volunteers and occasional consultants. Some were recruited by me, others are "once or twice removed," via Alberto or someone else. They comprise a diverse lot of Ticos, Gringos, Nicaraguans, Hondurans . . . One or two are waiting to vote for the first time, while Matute is in his late sixties. In terms of formal education we range from Matute, who never made it to first grade, to yours truly Dr. McLarney. But without exception the crew (including a couple of non-imbibers) are "good drinking company" — people I would choose to spend time with even if we weren't working together. Being a "talent scout" is an individual's skill, but our success also harkens back to my days at the New Alchemy Institute, where we discovered that a group which doesn't take its structure too seriously finds the people it needs without working too hard at it. ►

On one occasion, ANAI turned down a grant and steered a project to a government agency rather than have to work closely for a year with a person who did not meet our criteria of friendship. This is not clubbishness or some outsized notion of integrity. It is absolutely essential to the functioning of an intimately small organization, especially one where money and perks are not among the incentives. The proper analogy for a group like ANAI is not a business or a government office, but an orchestra or an athletic team. The wrong personality, no matter how gifted or technically brilliant, can sour the performance.

As important as relationships within an organization are relations with the supposed beneficiaries. I say "supposed" because more than one "do-gooder" group has found that their constituency wasn't interested. In Talamanca, one is constantly reminded of this by the omnipresence of abandoned cement toilet seats which apparently don't work in Talamanca outhouses. Distributed by some forgotten outfit concerned with sanitation, none were installed to my knowledge. Nearly twenty years after I first saw them, they recline against trees in Talamancan yards, slowly crumbling.

I DON'T KNOW the whole history of the toilet seats, but it is fairly certain that it involved someone "knowing" what was good for the peasants without asking for their input. At the opposite extreme is the tendency to romanticize the beneficiaries. This comes into bold relief in a Third World context, where too many of us Gringos tend to get our well-founded cultural guilt about what "we" have done to the greater part of the world confounded with dewy-eyed peasant worship.

ANAI's success in avoiding that trap comes in large part from living with the campesinos of Talamanca. After one eats a certain amount of rice and beans and drinks the requisite amount of guaro, irreplaceable friendships with wonderful people are formed. But if one is honest, one realizes that some of these people really are as lazy as the stereotypical Mexican under the hat. Some are incurably stupid. Some of the most apparently generous individuals turn out to be motivated solely by plans to rip off the "rich" Gringo. In short, they're just like us. But all of them, the thieves and the jerks as surely as the salt of the earth, have children who are scraping by in a deteriorating environment on criminally low incomes and likely receiving an "education" which will prepare them to unwittingly make things worse for *their* children. All the children deserve better.

Andrés Matute and Bill hard at work in the ANAI farm nursery.

It is possible to simultaneously be awed by some campesino's knowledge of a hundred species of forest trees and appalled to learn that in his mind the only realistic options for forest management are "cut it all down at once" or "cut it all down little by little." One of the questions that should follow this sort of experience is "What can I do to help?" Or, more specifically, "What do I know that they don't know? What door can I help open?" If you can't come up with a convincing answer, admit it, you're a tourist.

It comes down to walking a tightrope between excess humility and paternalism, a viewpoint corroborated by Thomas F. Carroll and Helga Baitenmann of George Washington University. In an evaluation of our work done for the Inter-

American Foundation, they wrote that "It may not be enough to help groups of struggling poor people to do what they already know and want . . . The ANAI case shows that people at the grassroots level often do not 'know how' to maximize their opportunities because they cannot always know what options they have." Part of our job is to point out and cautiously recommend some of the options of which we are aware.

An example comes from our agroforestry project. Its start found the campesinos of Talamanca reeling from the loss of cacao, their only cash crop, to a disease. When we began organizing community nurseries in Talamanca we envisioned alternatives to cacao — new options in the expanding tropical fruit market. The Talamancans had never heard of an arazá or a mangosteen. How then could they imagine who might buy such fruits? They wanted disease-resistant varieties of cacao and better management techniques.

The nurseries ended up planting both cacao and "the Gringos' crazy fruits." One result is that Talamanca is back in the cacao business. *But* management costs are much higher than before, and the world price is dropping. And now we are hearing of farmers selling arazá for the equivalent of 65 cents a fruit, or fresh-squeezed arazá juice at 40 cents a glass. Or we hear of a farmer who took a chance and sent four boxes of biribá fruit to San José, where it sold out quickly at a similar price. And where did you say I could get some seed of that new fruit you've imported from Australia?

WHAT IT IS ALL evolving toward is an integrated development plan for Talamanca, which we hope will embody lessons and ideas for other places with similar needs. But I think it's important to note that that was not the original goal, even though from the beginning it has been clear that there was an ultimate need for such a plan. Good plans grow from experience, and ANAI's first goal was to experience the place, the people, the problems. Then to identify one project that might do some good if it succeeded and not too much damage if it failed. One project built the confidence — within and outside ANAI — that led to another project. The projects began to make linkages which suggested a "plan," which now involves multiple government and local agencies and thousands of campesinos — and changes every day. It sounds and is complex, but Talamanca is not that big a place, and everyone at ANAI is committed to remaining a small organization — so as to better serve the small farmer, the small business and the village. The quest for smallness is not without its selfish side. I personally enjoy knowing all the players on the team, many of the beneficiaries *and* our supporters. Once a year, and once only, ANAI carries out a direct-mail fundraising campaign to a small non-shared mailing list. Most of this mail goes out of what is sometimes grandly called our "U.S. Office" — a 10 × 10 cubicle in my house in North Carolina. This permits me the pleasure of being personally in touch with our contributors. The nicest thing about the small but significant portion of our annual budget we raise that way is that every dollar is freely given as a statement of faith in ANAI's overall program.

That leads to a closing message to our friends in the neckties. The seventies and early eighties were a time of trial by fire for small, young, idealistic institutions. Many went under, some deservedly, others not so. But too often those groups which have survived by demonstrating their usefulness seem to be condemned to endure the same old trials over and over. We are too often required to create and justify new projects. (And fairly often we wind up dressing up ongoing projects with new titles and new advertising pitches, because we don't dare take a chance of boring donors with "the same old stuff.")

A few funding organizations realize that while adversity may build character, we survivors have character to spare. But there is still plenty of opportunity for others to gain a reputation for sagacity by making the same statement of faith as ANAI's $25 and $100 donors who give what they can knowing we won't quit until the job is done. With more general support and less time invested in writing and repackaging proposals, we could stretch dollars further and be even more efficient in what Carroll and Baitenmann identify as "a task that international centers cannot themselves do and that few national agencies achieve." ■

WHERE TO WRITE:

ANAI gratefully accepts donations, and sometimes takes on tough, Spanish-speaking interns. Write ANAI Incorporated, 1176 Bryson City Road, Franklin, NC 28734.

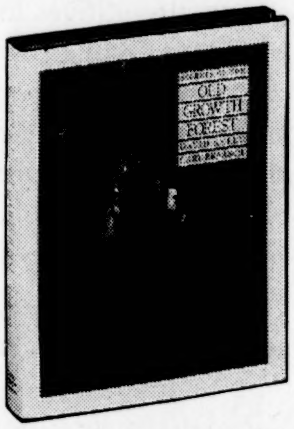
The largest trees of the Pacific Northwest old growth, redwoods commonly attain diameters of 10 feet and heights of 300 feet in a narrow zone in northern California and southern Oregon. This is the greatest forest on earth in terms of total weight of plant life — twice as massive as the tropical forests. All but 4 percent has been logged off since the nineteenth century.

Secrets of the Old Growth Forest

How easy it is to look with scorn and frustration at the destruction of tropical rainforests today. How hard to recognize our own destruction of a comparable domestic treasure. The old-growth forest of the Pacific Northwest is Canada's and America's ancient biological wonder. Here are trees hundreds of feet high that aren't "mature" until 250 years and often live a thousand. We are destroying the last remnants of this treasure at a time when science is just beginning to understand how it functions and sustains itself as a biological system.

It's rare to find a book that instructs with as much eloquence and beauty as this one does. When information is also aesthetic — like the color photographs throughout this book — it makes a deeper impression. Peregrine Smith Books has made a business out of doing right by books on worthy subjects, and this volume is one of their best ever. —*Richard Nilsen*

Secrets of the Old Growth Forest
David Kelly
and Gary Braasch
1988; 128 pp.
$29.95
($31.95 postpaid) from:
Peregrine Smith Books
P. O. Box 667
1877 E. Gentile Street
Layton, UT 84041
801/544-9800
or Whole Earth Access



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[The science relevant to forest conservation] is less than twenty years old. When a handful of researchers began to suggest the wisdom of not cutting a great deal of valuable timberland to preserve "biotic diversity," few knew what they were talking about.

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As of 1988 most Americans had never even heard of old growth. Still, one wonders how many Americans besides the members of Ducks Unlimited and the Audubon Society could have defined habitat in 1932. It is interesting to note that FDR allowed Aldo Leopold to create the national wildlife refuge system purely to get the duck hunters off his back. He never intended to fund it. He put the famous editorial cartoonist Ding Darling, who was a conservative Republican, in charge of the new U.S. Fish and Wildlife Service and gave him scarcely enough money for office supplies. Darling finally tricked the president by getting a rider attached to an omnibus bill that FDR signed, unread, just as he was leaving the White House for a fishing trip. It was weeks before anyone realized that Darling's rider was an appropriation of six million dollars for Leopold's refuges.

Darling's chicanery undoubtedly saved many species from extinction. Together with the Canadian lands bought or leased by a new private organization, Ducks Unlimited, the new refuges became the basis for what is by far the greatest international conservation success story in history.

•

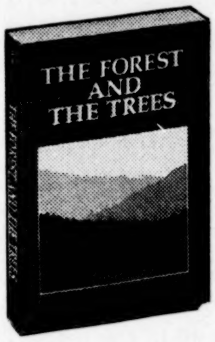
The best knowledge we possess suggests that a short-rotation managed forest on these soils will become increasingly expensive to maintain by the artificial means required as the nutrient levels drop. . . . There is worldwide evidence that artificial forestry simply doesn't work. In parts of Europe three short rotations have been sufficient to thoroughly deplete the forest soil; while in much of China, it has taken only two.

The Forest and the Trees

In 1966 The Sierra Club hired their first professional forester in order to respond to the accelerating timber harvests of the U.S. Forest Service. Gordon Robinson, the author of this book, was that man. As chief forester of the Southern Pacific Land Company, he already had a whole career's experience with forest management. He also had a collection of index cards with relevant facts and citations about good forest practices. That experience and those index cards (nearly 400 of them), plus the history and science of American forestry, and Robinson's own philosophy, are all in this book.

What is meant by "excellent" forestry is uneven-aged harvesting of trees, not mono-cropping and not clear-cutting. For anyone owning forested land or dealing with timber companies or the Forest Service, this is an essential and welcome book. —*Richard Nilsen*

The Forest
and the Trees
(A Guide to
Excellent Forestry)
Gordon Robinson
1988; 257 pp.
$19.95
($21.95 postpaid) from:
Island Press
P. O. Box 7
Covelo, CA 95428
800/628-2828 ext. 416
or Whole Earth Access



◆

You don't have to be a professional forester to recognize bad forestry any more than you need to be a doctor to recognize ill health. If logging looks bad, it is bad. If a forest appears to be mismanaged, it is mismanaged. But a certain level of expertise is needed if you are going to be effective in doing something about it.

◆

Good forestry is not a lucrative business. It never was and it never will be, because it takes longer than a lifetime to grow high-quality timber, longer than anyone can wait for a return on investment. It takes 75 to 150 years to grow timber in sizes useful for lumber and plywood; it takes twice that long to grow high-quality wood for fine furniture and instruments. The large spruce trees in Alaska that are being cut and shipped to Japan for piano sounding boards, guitars, and exquisite residential paneling are often as much as 1,000 years old.

◆

The Forest Service was once proud to implement the principles of multiple use and did so for many years. It is still bound by law to do so under the Multiple Use — Sustained Yield Act of 1960.

However, in recent years the Forest Service has turned its back on its tradition and substituted "dominant use" — timber production — in its management of the nation's commercial timberland. Clearcutting has become the norm rather than the exception. If the agency is allowed to continue on its present course, the nation's old-growth forests will vanish forever, perhaps as soon as the end of this century. . . . And when the old growth is gone, surely there will be a concerted effort by the timber industry to log the wilderness areas and parks as well.

Is this the direction in which we want to go? Or can we citizens, the owners of these old-growth forests, using the information in this book and others and the findings from the Forest Service's own research stations, succeed in convincing the agency to take a more prudent path?

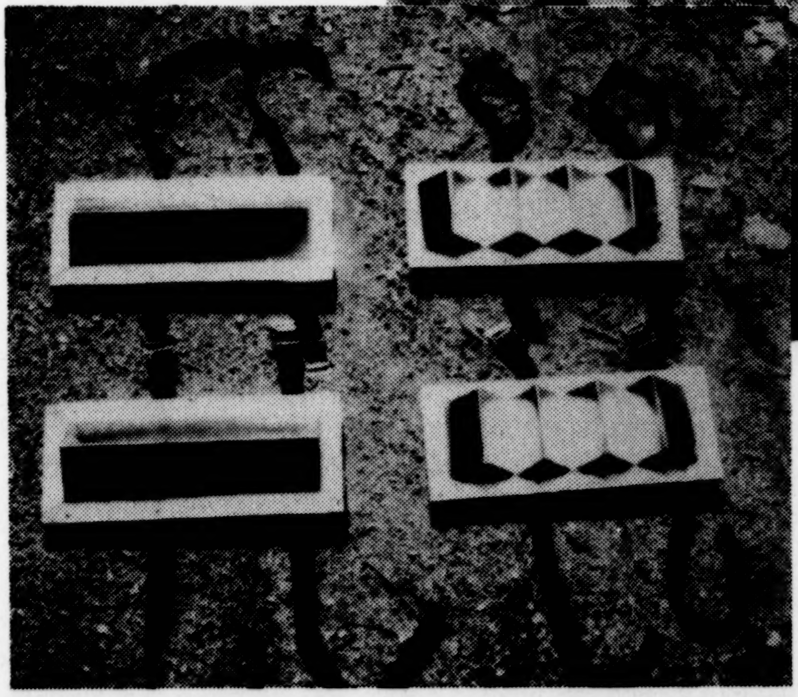
Dixon Land Imprinters

Desertification is a creeping planetary blight. Once land is deforested, over-grazed, or otherwise denuded of most or all vegetation, the soil surface rapidly loses its porosity and becomes smooth and hard. Rainfall runs off, rather than soaking in for use by plants, causing severe flooding and erosion. To revegetate an area you have to repair the damaged soil surface before you can expect your plantings and seedlings to take hold well or at all.

The imprinters developed by Dr. Robert Dixon mechanically roughen and shape the soil surface to make it no longer smooth and hard. Water pools and soaks in for seeds and plantings to use. Flooding and erosion are sharply reduced or even eliminated. Vegetation can get a good foothold and then biologically maintain and enhance the porous and roughened soil surface initially provided by the imprinter. Imprinters have been in use in the U.S. Southwest for over ten years, with good results that I have personally verified. They are increasingly turning up in the Third World now.

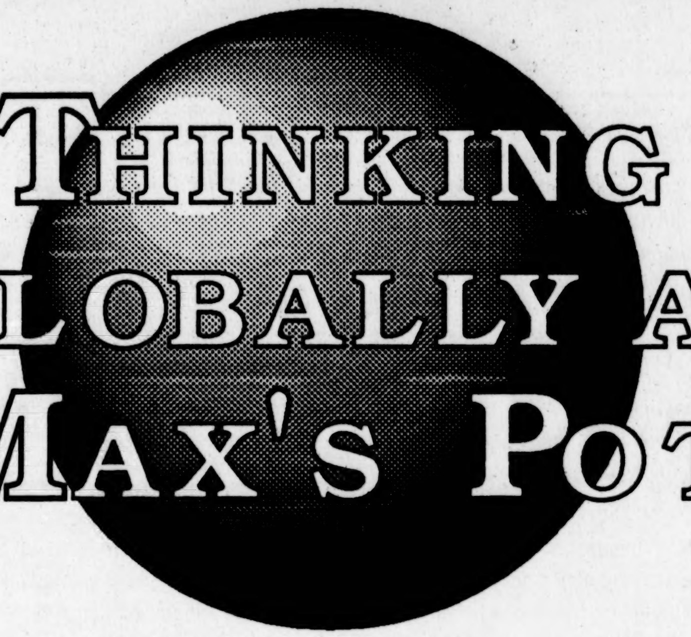
Imprinters come in various sizes, from ones best pulled by a D4 Cat down to hand- or foot-operated models. Imprinters can be bought, or you can roll your own homemade model with a little help from the Imprinting Foundation run by Dixon. —*James Kalin*

Dixon Land Imprinters:
construction plans **$2**
(specify foot- or hand-operated) from The Imprinting Foundation,
1231 East Big Rock Road,
Tucson, AZ 85718;
602/297-6165.



Strap-on foot models.

THINKING GLOBALLY AT MAX'S POT



BY PLINY FISK III, GAIL VITTORI, AND RAY REECE

WE RUN A COMPANY IN AUSTIN, Texas called the Center for Maximum Potential Building Systems, Inc. Most of our friends and constituents know us as the Center, or the Pot, or Max's Pot. We live and work in a turn-of-the-century farmhouse atop a hill overlooking Austin. Surrounded by the illusory prosperity of high-tech industry, our hilltop perch serves as our proving ground, our home base — the place where we begin our process of seeing the possible from an oftentimes impossible array of resources, places, and people.

We started the Center 14 years ago, before we knew more than just a smidgen about such things as bioregions, biomes, and other elements of the bioregional movement. We defined ourselves then as appropriate technologists caught in a society that was driving the planet toward serious damage — perhaps toward extinction of life itself — from brute technologies and resource pillage as inappropriate as we could imagine. We still use the term "appropriate technology" to describe what we do, but now we use the context of the bioregion — its potentials and constraints — and the framework of sustainability as fundamental guideposts. An "appropriate technology," in our current lexicon, is a method of using the material resources of a bioregion — its water, its soil, its minerals, flora, and fauna — in such a manner as not to exceed that bioregion's carrying capacity, i.e. its ability to sustain its health and resource yield through natural means of growth and renewal.

Our commitment to this perspective has led Max's Pot to some interesting places in the past dozen years — like invited U.S. House and Senate sub-committee testimonies, plenary talks at national and international housing and energy conferences, university lectures and consultancies — and like solitary confinement in a jail cell in Crystal City, Texas. This is a south Texas farming town of 10,000 people, mostly poor and Mexican-American, to which we were beckoned in January of 1978. Two years earlier, a group of political reformers associated with La Raza Unida had been elected to the city government. They had stopped paying the better part of the city's natural gas bills to protest a tripling of rates for gas in violation of a multi-year contract. So, in the icy winter of 1977-78, the gas company terminated service to the town and provoked a public health emergency. After vain appeals for help from the federal government — help denied by the intervention of a Texas governor who considered La Raza a pack of socialist revolutionaries — the city leaders contacted us through mutual friends, and off we went in a wheezing old VW microtruck.

We stayed in Crystal City for several months, plying our craft as appropriate technologists while seeking ways to nudge the city toward self-reliance and economic autonomy. We built a factory able to produce five solar water heaters a day with a crew of five. We coordinated the installation of over 800 wood-burning stoves, some of which were joined functionally to the hot water systems. We established a credible cottage industry based on the collection and distribution of local mesquite wood. We financed these and other initiatives with modest grants from the Community Services Agency and Department of Energy, followed by a more substantial sum from the National Center for Appropriate Technology, and, all along, supplements from our own scant resources.

When we left Crystal City in the early summer of 1980, we were hailed as semi-heroes of Technology for the People. But when we went back a couple of years later to retrieve some equipment — our equipment — from a Crystal City warehouse, the Center's director was arrested and jailed for larceny theft. We

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Max's Pot was established in 1975 by Pliny Fisk III and Daria Bolton Fisk. Unlike similar institutions that have failed, Max's Pot transcended being merely an appropriate-tech demonstration center where visitors came to stare. Instead, the Center works directly with people on a variety of projects around the hemisphere. For more information and a list of publications, contact the Center for Maximum Potential Building Systems, 8604 F.M. 969, Austin, Texas 78724; 512/928-4786. —*J. Baldwin*

We have consulted with clients as diverse as Lakota Sioux elders in South Dakota and real estate developers in Dallas, each desiring beautiful, efficient housing derived from their respective regional resources.

hadn't sufficiently accounted, we learned, for the frontier subtleties of south Texas politics. Our former patrons in La Raza Unida had been hounded out of office, and their successors had branded the Center as part of the short-lived socialist insurrection. After three days in solitary, the charges were dropped as unceremoniously as they had been levied. (Meanwhile, after ten years of use, about a third of our $150 solar water heaters are still performing in Crystal City, according to a study by a Baylor University graduate student.)

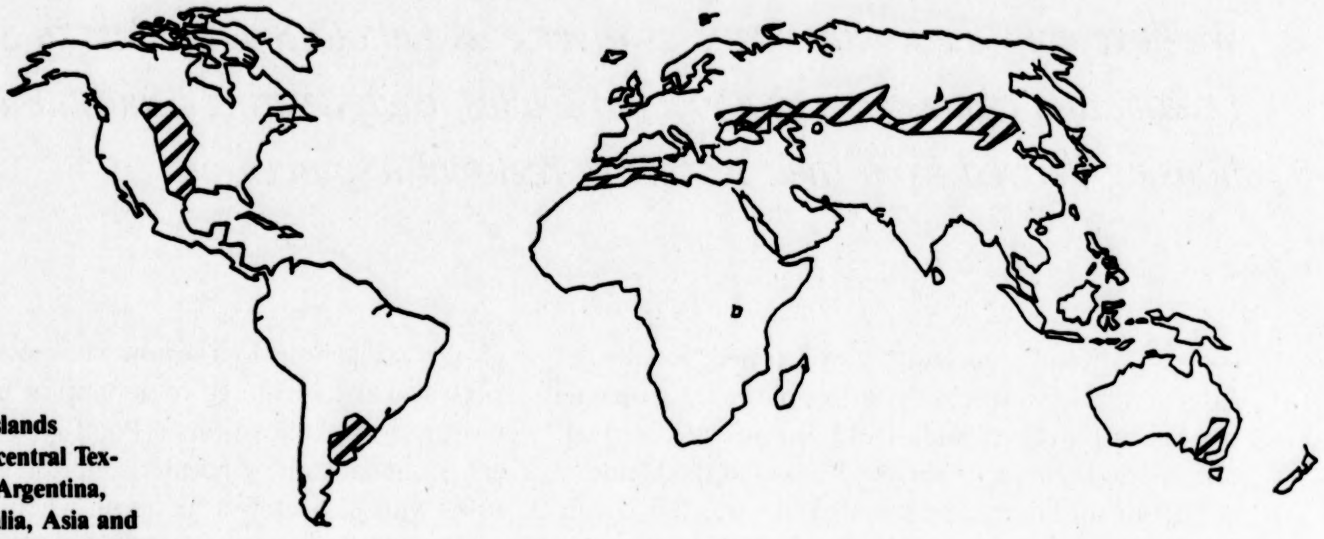
Despite this ambiguous epilogue, the winter we spent in the jaws of crisis at Crystal City was one of the most formative experiences in the history of the Center. In those few months of system design and hands-on labor, of training workers and dodging flak from government heavies, we were able to test and refine a cosmos of theories that we had evolved as planning students under Ian McHarg and later as faculty in the School of Architecture at the University of Texas (from which Pliny Fisk was proud to resign in the heat of that freezing south Texas winter).

Take mapping, for example. Even before the adventure in Crystal City, we had been working on a resource mapping program that we had expected to become the foundation of our future practice of appropriate technology — one that we hoped could find its way into the practice of others engaged in similar pursuits. Now supported by our computers, the program is based on three symbiotic classes of data pertaining to the resources in a given locale. The first of these is Area Resources. Here we identify and map the location of every relevant biological and mineral resource in the area being studied — from water and soil types to plants, animals, geological deposits, and factors related to climate and weather. At the core of this inventory, preferably, is the main provincial or bioregional watershed. This enables us to gauge not only the volume and distribution of water resources available for human use, but also the principal *constraint* on technological activity in the area. When that intelligence is combined with analyses of the life-support capacity of other area resources — adobe, say, for brick manufacturing — we know at least approximately what level of population the area will tolerate, without ecological pain, and what technologies should be deployed.

The other two components are Point Resources and Network Resources. The former refers to people and groups indigenous to a region who possess the knowledge and skills required to develop or use the natural resources available to them. Point Resources are farmers, stone masons, carpenters and the like, plus local folks who just know a lot about where they live. And a Network Resource — to complete our area mapping trilogy — expresses the degree to which a region's point resources form complete local chains or exchanges of local goods and services based on a region's human and physical resources. Network resources cover "soft" issues such as information and money flow, and "hard" elements such as energy and material flow.

In the years that have passed since Crystal City, we have built into our mapping program a fourth dimension based on the global biome system developed by M.D.F. Udvardy and other biogeographers for the International Union for the Conservation of Nature (I.U.C.N.) A biome, in Dr. Udvardy's formulation, is a means of classifying all of the regions upon the planet that share essentially the same biogeographical features and conditions. The Central Texas home of Max's Pot, for example, is part of the Temperate Grasslands Biome that also occurs in Argentina, Uruguay, Australia, and portions of Asia and Europe. There are 13 other major biomes around the world, and their classification by Dr. Udvardy and his associates has added a priceless instrument for exchanging information through the knowledge fields necessary for bioregional planning.

We laid hands on that instrument, along with much else in our repertoire, when we were commissioned in 1984 to plan and design a 400-unit housing project in Puerto Cabezas, Nicaragua — an impoverished Miskito Indian town of about 25,000 residents on Nicaragua's Atlantic coast. Faced with an enormous housing deficit exacerbated by a protracted civil war, Puerto Cabezas had become in recent years dependent on imported building materials to replace the once plentiful resources derived from the region's bountiful forests — forests so bountiful that U.S. corporations took more than their share and left the region depleted and barren. No longer able to either afford or order imported materials, our assigned objective was to look at the region with fresh eyes — figure out what was there that could be used to rebuild the town, and draw the plans, design a prototype, and engineer the construction scenario for a low-cost indigenous home-building initiative to be carried out



Temperate Grasslands Biome includes central Texas and parts of Argentina, Uruguay, Australia, Asia and Europe. Information exchange between these regions should prove useful.

THE BIOMESPHERE

by the Indians themselves. We were funded in this endeavor by OXFAM (England), TROCAIRE (Ireland), and the Rubin Foundation (USA).

We commenced our work with the resource mapping program described above. We found that the biome in which the project was located — the Tropical Grassland and Savanna Biome — is replicated in nine other regions of the world. By consulting a database keyed to those regions, we compiled a list of 47 groups of appropriate technologists and researchers working in territories similar to Puerta Cabezas. We queried these groups and eventually received a wealth of information relevant to our project, especially with regard to unique applications of soils and plants.

Once on site in Puerto Cabezas, we extended our mapping to the local area and tested samples of indigenous materials in a portable lab designed to give readings on a range of factors, from compression strength of brick materials to soil salinity and moisture content. Our finished map of Area Resources showed the location of more than enough indigenous material to accommodate the housing project without exceeding the natural limits of the bioregion. Among those resources were kaolinite clay and waste rice husk for making brick and roofing tile; coconut fibers, palm fibers, and bamboo shoots for strengthening cement products; a variety of woods for roof joists, columns, and lintels; additional materials, including wood resins and sawdust, from which to make paints, preservatives, and insulation for ceilings and walls.

We also conducted a methodical survey of the town's inhabitants to determine their housing needs and preferences and the types of skills they might contribute to the building process. We combined this data with an inventory of tools and equipment in Puerto Cabezas to produce a map of Point Resources that proved more complete, by far, than a companion map of Network Resources. It was in this scarcity of trade and industrial organizations, not to mention money and the ongoing civil war, that we found the most formidable barrier to a rapid execution of the housing project. (On the other hand, such deficiencies represent chances to establish what we call "gap industries" in the area.)

Having completed our resource mapping and needs assessment, we designed a prototype house in Puerto Cabezas modeled on but different from existing homes, especially in terms of comfort, sanitation, and durability. Then, using tools and techniques familiar to the townspeople, we fabricated a number of components from the native resources we had identified. One of these — an innovation unwittingly suggested by an Indian artist — was a clay cement roof tile interlocked with palm thatch, the traditional means of roofing in Puerto Cabezas. (The first material was used to fireproof the structure from within, while the second served to shade the structure from without.)

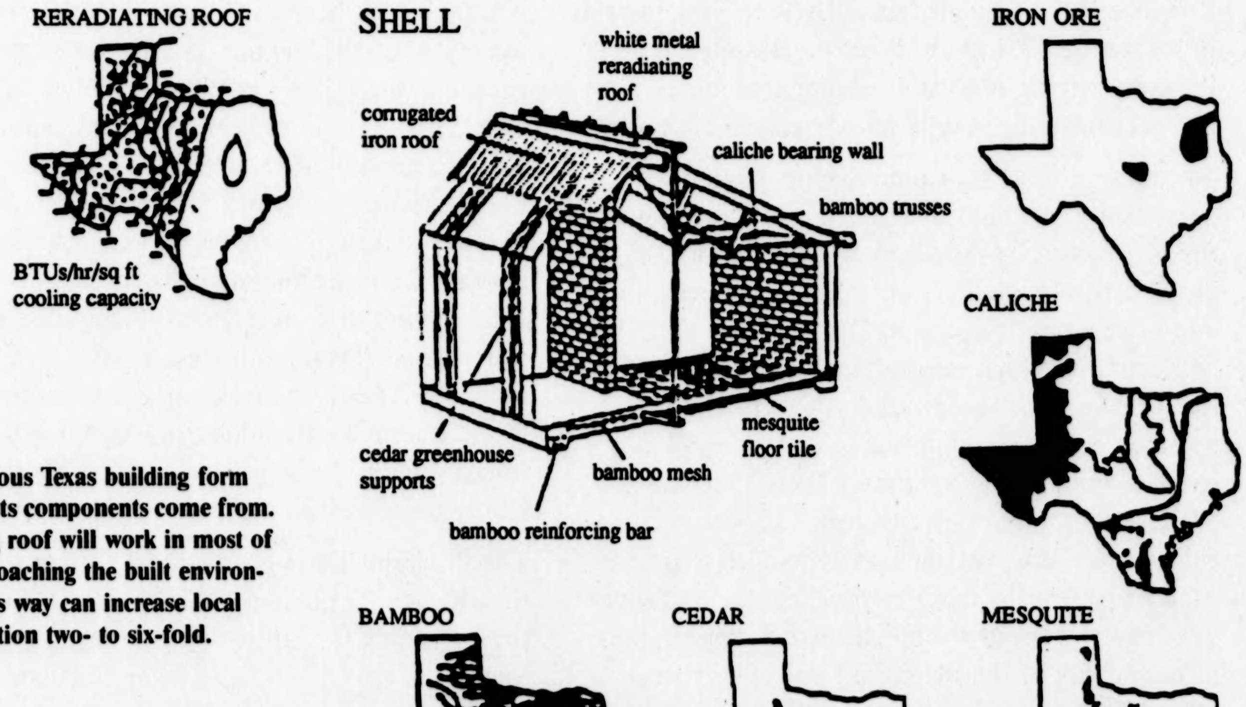
Among our aims in Nicaragua, as it was in Crystal City — as it is in practially all of our jobs — was to demonstrate the link we perceive between ecologically sensible resource development and the cultivation of provident local economies free of dependence on parasitic external forces (like U.S. corporations in Puerto Cabezas and Crystal City). Call it community self-reliance. Call it steady-state economics. Call it indigenous economic democracy built on pylons of appropriate technology. Whatever it's called, there isn't much of it left on the planet, and its growing paucity — in the face of hegemonic and destructive advances by multinational corporate interests — is a greater challenge to global bioregionalism than all the unsolved technical and scientific problems combined.

Indeed, we at Max's Pot have reached a point in our own evolution where we can produce an enormous range of soft-path technical and design solutions for a spectrum of clients from large to small and rich to poor. While the particulars of any one project may be unique, what binds our work together is our approach, which commits us to carefully using available resources while not interfering with a region's natural integrity. We achieve this by adhering to the fundamental attributes inherent in the resources surrounding us, and devising methods to creatively and aesthetically integrate these to achieve a balanced system of life support.

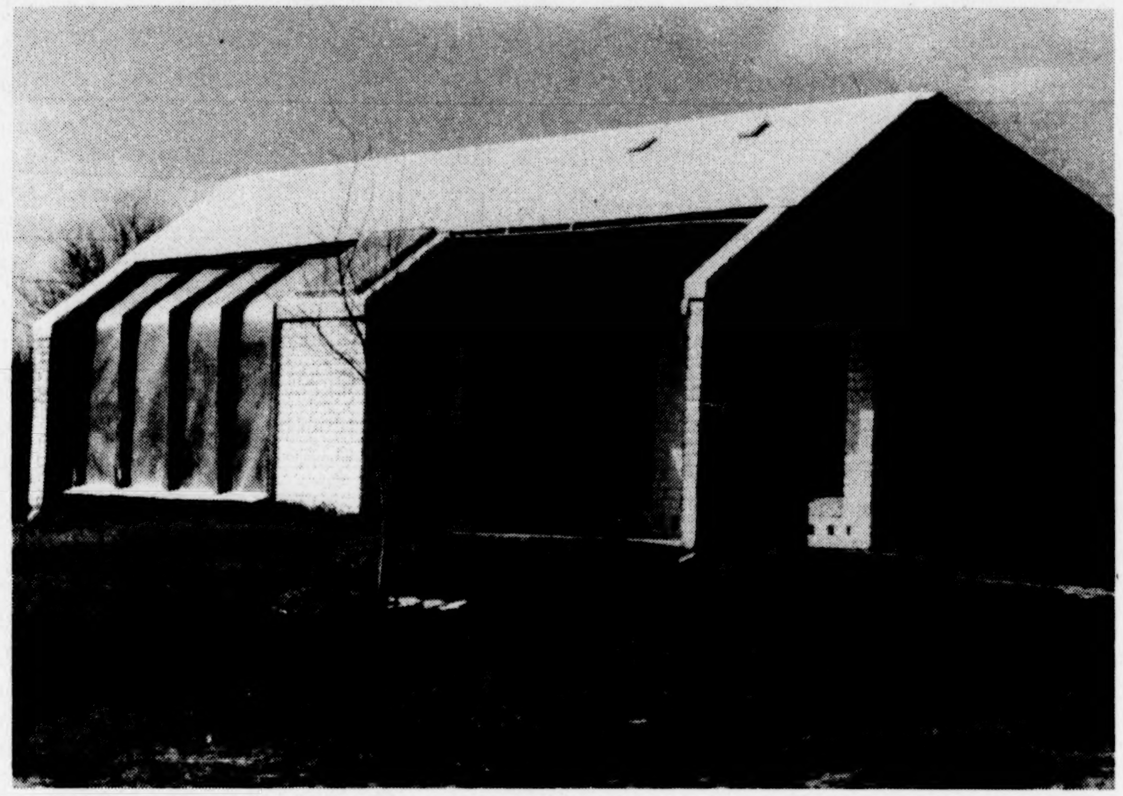
In the past ten years at the Center, for example, we have built a passive solar school for troubled youth and a Girl Scout headquarters from the same indigenous earth material: unfired caliche block formed on site in mini-factories. We have consulted with clients as diverse as Lakota Sioux elders in South Dakota and real estate developers in Dallas, each desiring beautiful, efficient housing derived from their respective regional resources. We have devised myriad techniques and products, like a permeable paving from coal-based fly ash cement and batch solar water heaters, that could be the bases for whole new industries, bioregional or otherwise.

But, even with the broad range of capacities the Center has developed and the breadth of projects completed, our efforts have yet to generate a single autonomous regional economy or even a large-scale development project in which the use of our technologies — straightforward, low-cost, and labor-intensive — has provided permanent jobs for the unemployed and homes for the homeless in distressed communities. We have tried to do this, as we said, not only in Crystal City and Puerto Cabezas but virtually everywhere we have worked, including Austin. Here we designed, two years ago, a regional prototype house constructed with materials derived almost entirely from resources native to central Texas. It would be durable, low-cost, and energy-efficient, and its proliferation in Austin alone would create hundreds of long-term jobs. We received awards for that design — one from the National Endowment for the Arts and one from an Austin municipal agency that sponsored an "Affordable Housing" design competition. But the house is unbuilt, the jobs uncreated, because, with few exceptions, Austin government and business leaders, like those in positions of national power, are still committed to growth scenarios and building technologies that serve the needs of global corporations and welfare states, rather than the needs of local self-reliance and global ecological viability.

That said, we at the Center remain optimistic about our chances to help effect a soft revolution based on the principles informing our work. We have learned that persistence and stubbornness, coupled with alertness and a thirst for innovation, do pay off, even in backward political environments. Recently, for example, we managed to get the attention of an enlightened official in the Travis County Housing Authority in Austin. This has led to a county contract to design a community center that will be constructed with indigenous materials — straw clay walls in particular — and a water catchment and storage cistern that becomes the energy source for the building's heat pump, thus providing the requisite heating and cooling. It will be a first for Travis County, perhaps for



An indigenous Texas building form and where its components come from. Reradiating roof will work in most of state. Approaching the built environment in this way can increase local job production two- to six-fold.



An almost-all-indigenous building material structure that looks similar to other buildings in this contemporary south Texas neighborhood, but whose building and utility system actually supports the town that it sits in by using natural resources.

the United States, and its completion will doubtless help us advance the thinking of other people in our hometown bioregion.

Meanwhile, we are working on a much larger project for a Texas state official who has made a career of visionary thinking and bold, innovative solutions to intractable problems. He is Jim Hightower, the Texas Agriculture Commissioner, and the problem under attack is the crisis of farming in the semi-arid lands of west and southwest Texas, adjacent to and threatened by the spreading deserts of northern Mexico. Each year in this region — the Tamaulipan Biotic Province of the Nearctic Desert Division — thousands of acres of fertile topsoil are lost to erosion and desertification, wiping out scores of marginal family farms and deepening the poverty already endemic in the area.

To counter this crisis, Commissioner Hightower has organized the Laredo Blueprint Farm Project, with funds provided by the Meadows Foundation, the Hoblitzelle Foundation, and numerous other public and private donor agencies. The Blueprint Farm is a collaborative effort, international in scope, to adapt the techniques of successful dry-land farming cultures, especially Israel, to the comparable soil and climate conditions in southwest Texas. Our role at Max's Pot is to parallel such regionally based agricultural methods with an equally resource-efficient support system. In short, to plan, design, and supervise construction of the buildings and crop-support infrastructure of the Blueprint Farm. This covers everything from office quarters and packing sheds to multi-purpose greenhouses, down-draft cooling towers, solar crop dryers, solar refrigeration units, compost facilities, and solar-purified water and wastewater systems. All of this is to be accomplished with indigenous materials, local labor (specially retrained as agents of the bioregional transition), and existing service and supply networks.

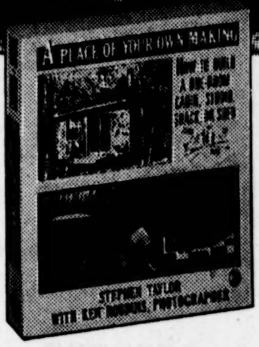
This has taken us right back to our resource mapping and planetary database. From the great Bedouin tent societies of the Arabian Desert and an ancient farm in Avdat, Israel, among other sources, we have derived a system of shading for the Blueprint Farm — indeed a system of shades and tents on poles — that will help conserve water while stimulating the growth of plants and livestock. From other desert cultures, as well as our own research in Texas, we have developed a range of applications for indigenous earth and crop materials, applicable not only to this project but to the approximately 43 percent of the world's surface considered an arid or semi-arid zone. Some of what we have come up with includes baled straw as building blocks for wall construction, the desert mineral borate for fireproofing, cotton for fabric structures, and another fabulous mineral called zeolite for freon-free solar refrigeration at one end of the cycle and solar water-heating at the other end. Finally, in the now-defunct oil fields in and around Laredo, we have found a teeming abundance of high-quality, low-cost iron drilling rods from which to fashion the scores of sturdy poles we will need for our shading system.

The Blueprint Farm is scheduled for completion in time for spring planting in 1989. It will be a blueprint not only for future dry-land farms in the United States, but also for the uses of appropriate technology and bioregional wisdom in the era of crisis that is now bearing down on the entire planet. We at the Center expect to play a role in further confrontations with that crisis, and we expect the earth and its creatures eventually to prevail. ■

A Place of Your Own Making

There must have been a void in my psyche shaped just like this book because I fell for it on first browse. I'm near the end of a building project of much greater scope but I found it immensely useful. Not for the simple drawings nor the clear photographs but for the amusingly written dialog between writer and reader which connects the process of building to the process of learning, to social history, and to Jefferson, Franklin, and Martin Buber.

But it is not a book about these people or ideas, it is about how to build a one-room cabin, and I think it's almost all you need for that, too. —Don Ryan



A Place of Your Own Making
Stephen Taylor
1988; 244 pp.
$14.95
($16.95 postpaid) from:
Henry Holt & Co.
P. O. Box 30135
Salt Lake City, UT 84104
800/247-3912
or Whole Earth Access

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People who talk about changing in some sought-for way will insist on their "no pain, no gain" caveats, yet there's something in the very nature of the process of putting up a building that makes the evolution of your skills comparatively painless. Step by step, your proficiency grows as it's most needed. At the outset of the project, the foundation asks for very little in the way of expertise, so your ability to transfer what's in your imagination to the ground or to the wood doesn't have to be especially refined. You'll get an early feeling for your tools and materials, and the foundation will forgive all but the grossest mistakes. Then, when you go on to the deck, you'll need only slightly more precision than you needed for the foundation, and when you finish it you may find yourself aching to use your developing facility on something more demanding. And sure enough, framing the walls, the next step in sequence, is just that thing. By the time you're in the homestretch you'll be trimming the inside of the building — making windowsills, baseboards, all the woodwork that draws the closest and most frequent scrutiny. And by then, having practiced at cruder tasks, you'll have gained enough proficiency to make the work look decently professional and maybe even ornamental. Newfound skills have a way of asking to be practiced ornamentally.

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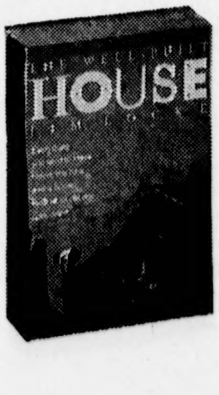
Whatever else it was, making the outbuilding has been an exercise in personal competence; it's been quintessentially uncorporate. If the central concept of the corporation is the notion of limited liability, you, by contrast, have been liable all the way — for the work, the bills, the building's structural integrity, for its look and feel and how effectively it does the job of sheltering. If you've screwed up, there isn't any corporate facade to hide behind. The responsibilities begin and end with you. You can always try hiding behind this book (that's one of the things it's for), but one slim volume won't give you the kind of concealment that a squad of Wall Street lawyers will.

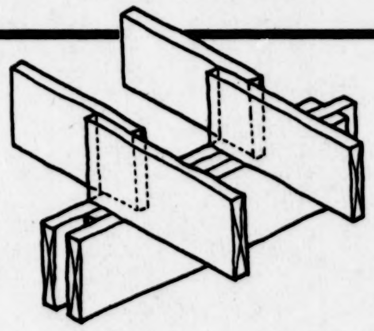
What you get in return for assuming all that responsibility is the dissolution of the mystery inside the walls. Unlike your television set or VCR or your computer or even the hydrogen bomb, the outbuilding won't be just another black box that plays a major role in your life even though its innards baffle you. Your liability may not be limited, but neither is your freedom to chop into what you've built and knowledgeably change it. Your ownership of it isn't mitigated by the need to leave it in the hands of specialists when it doesn't work the way you want it to. It's yours in the fullest sense.

The Well-Built House

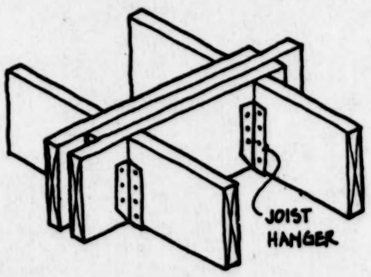
*If you've read Tracy Kidder's best-selling book **House** (**WER** #50 p. 86), you've already met the author of this book. He's one of the carpenters in that saga of personal relationships that finally get a house built. Now, in his own book, Jim Locke gives you the builder's-eye view of planning and building your own home. It's like having a friendly uncle in the business; the friendly, chatty advice is essential, forged from many years of difficulties met, solved or avoided. It's detailed right down to where best to put the nails in a baseboard. Even if you don't plan to do the work yourself, knowing all this stuff will help you make good decisions and informed inspections. Reading this, plus Kidder's **House**, will surely make your homebuilding go more easily.* —J. Baldwin

The Well-Built House
Jim Locke
1988; 276 pp.
$8.95
($9.85 postpaid) from:
Houghton-Mifflin Co.
Attn.: Mail Order Dept.
Wayside Road
Burlington, MA 01803
800/225-3362
or Whole Earth Access





JOISTS OVER GIRDERS



JOISTS FLUSH WITH GIRDERS

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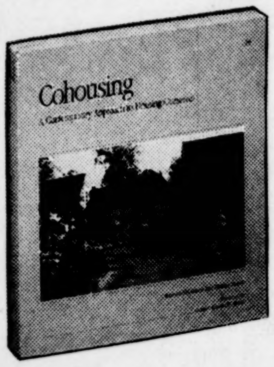
Girders can be placed flush with (even with the tops of) or below the joists. Flush girders make for more headroom in the basement, but mean attaching the joists to them, usually with metal joist hangers. Putting the girders below means the joists rest on top, making them easier to install. The lower girder also means less basement headroom.

All framing lumber shrinks after it is installed, especially after a heating season. Normally, the joists shrink more than the girder. If the joists are flush, shrinking sometimes makes a broad lump in the floor above. This is particularly noticeable in a timber-framed house, where the girder is one massive piece and the joists are smaller and lighter. The girder twists and shrinks a little, the joists shrink more, and whoop goes the floor. If the girder is below the joists, it can be shimmed up to bring the floor level and leave no hump.

Cohousing

Like many innovative housing ideas, this one started in Denmark where there are more than one hundred cohousing projects in operation. The Danes use the word bofaellesskaber *— living communities. These are not communes or condos, though there are similarities. People own their homes, but also share other communally owned amenities built into the project. There might be gardens, a library, laundry and workshops. Many cohousing projects have community dining — a boon for singles and seniors. Single parents find child care easily; kids are safer because cars are banished to peripheral parking lots. In short, cohousing means a pleasant, neighborly place to live, just what so many of us have long dreamed about. Turns out, cohousing is cheaper, too! This beautiful book translates the whole idea into a form that we can put to work here, and very nicely too. I'll bet we hear a lot more about cohousing soon.*

—J. Baldwin



Cohousing
Kathryn McCamant
and Charles Durrett
1988; 208 pp.

$19.95
($21.45 postpaid) from:
Habitat Press
48 Shattuck Square, Ste. 15
Berkeley, CA 94704
415/848-0331
or Whole Earth Access

●

As the first generation of children raised in cohousing comes of age and moves out on their own, it is clear that this approach to housing is more than a passing fad. The teenage residents of the first cohousing communities generally want to experience other housing environments, such as student dorms, shared houses, and inner-city apartments, but most of them expect to live in cohousing again. "I can't imagine raising children any other way," one teenager told us.

Although their community was built at the same density as single-family houses in the area (upper right), Trudesland residents chose to cluster the 33 dwellings along two pedestrian streets, localize parking, and preserve the wooded portion of the site.

●

I know I live in a community because on a Friday night it takes me 45 minutes and two beers to get from the parking lot to my front door.

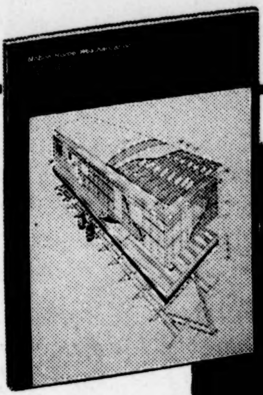
—*Trudeslund resident*

Row houses with small front gardens line the pedestrian streets where much of the community's socializing takes place. The play areas are primary gathering spots for both children and adults.

Mobile Home Weatherization

They may cost less to buy, but many mobile homes cost so much to run that they end up as expensive as a conventional house. This is particularly true of mobile homes built before the HUD insulation codes of 1976. Thus the sad situation is this: the folks most in need of inexpensive housing often must pay outrageous utility bills. This booklet will help tool-savvy citizens tame the energy hogs. It's not a step-by-step manual — there are too many models of mobile home for that to be practical. More realistically, it outlines the basic principles of what can be done. Another useful item from our National Center for Appropriate Technology (NCAT). —J. Baldwin

Mobile Home Weatherization
1986; 54 pp.
$6
postpaid from:
NCAT
P. O. Box 4000
Butte, MT 59702
406/494-4572



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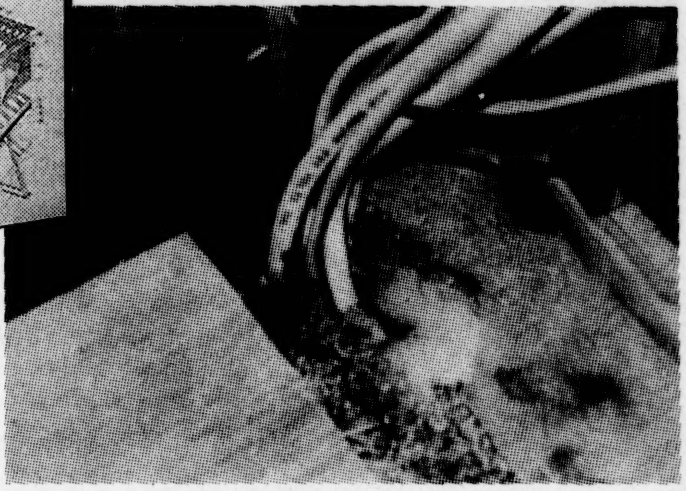
Air infiltration is outside air leaking into homes through cracks and holes. Air infiltration is accompanied by air exfiltration which is inside air leaking through cracks and holes to the outside. Infiltration can consume large amounts of heat during the winter since cold outside air leaking into the house has to be heated to room temperature, and inside heated air is lost through exfiltration. In some older homes situated in windy, cold climates, air infiltration may account for more than half of the heating bill.



Pipe and wiring penetrations are a common source of leaks.

DOME Magazine

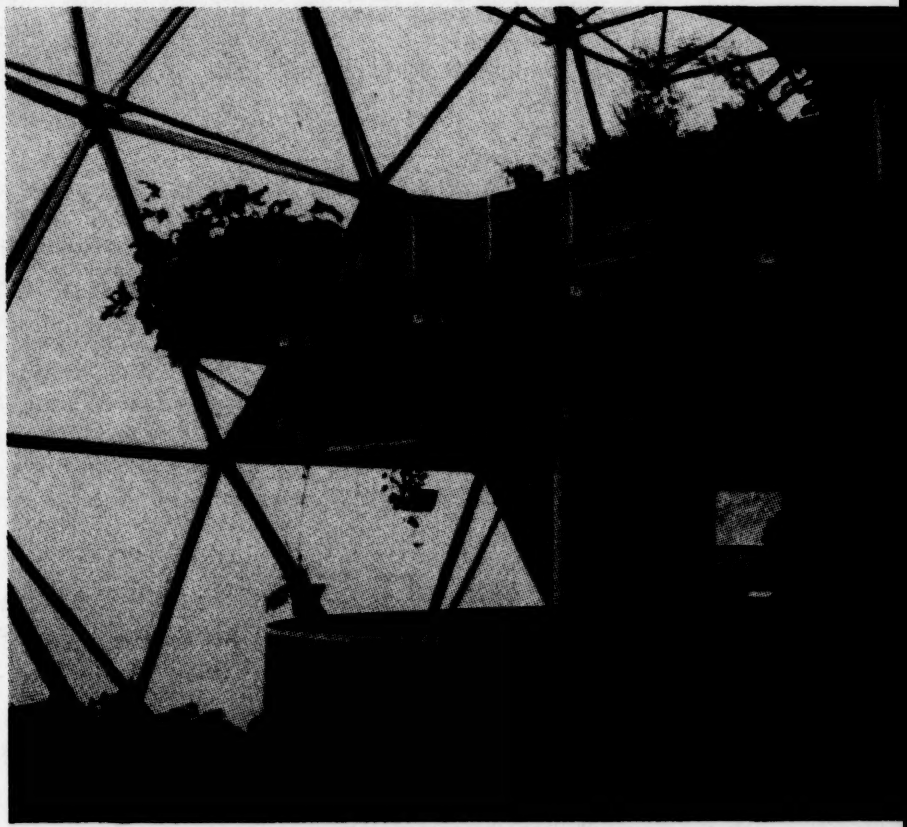
Most unexpectedly, this first-class magazine examines many aspects of dome building besides the shingle-geodesics sold by most of its supporting advertisers. Oh, the shingles are there all right, well served by articles on construction, interiors, and interviews with dome owners and builders. But the most interesting articles in the Fall '88 issue on my desk include an interview with Buckminster Fuller's mathematician, Amy Edmondson, a fine piece on the astonishing fifty-foot biodome executed by John Katzenberger at the Windstar Foundation in Colorado, and a wonderful thatched bamboo dome in Calcutta. There's a list of dome designers and makers too. Looks like a worthy dome magazine is with us at last.
—J. Baldwin

DOME
Donald R. Hoflin,
Editor
$32/year
(4 issues) from:
DOME
4401 Zephyr Street
Wheatridge, CO
80033-3299

•

Is the dome more a type of architecture or a way of life?

For some people, it is a way of life; for others, it's just a very pleasing architectural design, more room and interesting spaces. I don't really care whether people want to live in domes. They are phenomenal architectural structures and make very nice houses. They are even more useful when you want to enclose very large amounts of space, such as a stadium, a museum or a place to grow lots of food year around. When you look at the nature of the solution, you find the dome has an ability to enclose enormous amounts of space with very little material. They get more and more efficient the bigger they are. The volume grows at the rate of eight times every time the diameter is doubled, and the surface area is increased by a factor of four. The bigger they are, the more efficient they are. Taken to its logical extension, the real uses of geodesic domes are going to be novel environment enclosure applications — environment control designs that we haven't even thought of yet, whether it's for growing food, or one of Bucky's ideas of covering entire towns with domes, as opposed to using them for tiny little homes for everyone, little bubbles everywhere. Who knows? I guess I become too theoretical about it, but I love to do the math, developing ever more efficient ways to calculate and build them. I've had less direct hands-on experience building them and living in them. Personally, I'd love to live in one, and will at some time. *—Amy Edmondson*



Fish tank and crops inside the biodome at Windstar, Snowmass, CO.

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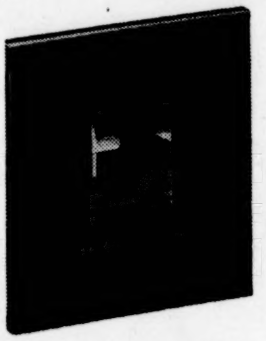
The current attitude is that standardized uniformity offers the least possible risk to housing lenders. The priority of using fewer materials to enclose greater amounts of space, produce stronger buildings and use less energy to heat and cool have not yet become major considerations to those who currently finance American housing and have the most to risk. As a result, both nostalgic and new age housing can only be built by those who are willing to afford the time and energy it takes to go against the grain of tradition to exercise their freedom of choice.

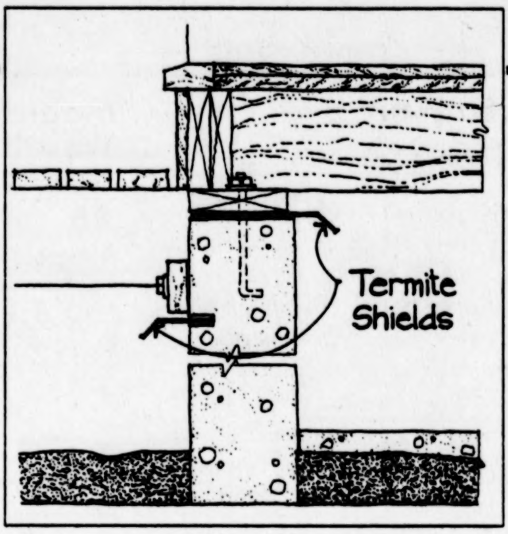
Healthful Houses

Frequently the air we breathe inside is worse than what's outside. The pervasive dangers of indoor air pollutants have become more widely known in the last 10 years, but techniques for alleviating them are harder to come by.

This slim volume is an "ounce of prevention" for anyone buying, building or remodeling a home. It's a book of practical solutions, co-authored by an architect who had to design and build his own non-toxic house to live in when he became very allergic to modern building products. Essentially a set of non-toxic building specifications — mentioning brand names and company addresses when appropriate — it functions as both a resource directory and a check-list of safe practices for designers, owners and builders. —*Richard Nilsen*

Healthful Houses
Clint Good
and Debra Lynn Dadd
1988; 74 pp.
$19.95
($22.95 postpaid) from:
Guaranty Press
4720 Montgomery Lane
Ste. 1010
Bethesda, MD 20814
800/541-9185
or Whole Earth Access




Termite
Shields

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Termites are generally controlled by the use of toxic chemicals. A healthful house is protected from termite invasion through design features which consider the habits of the termites.

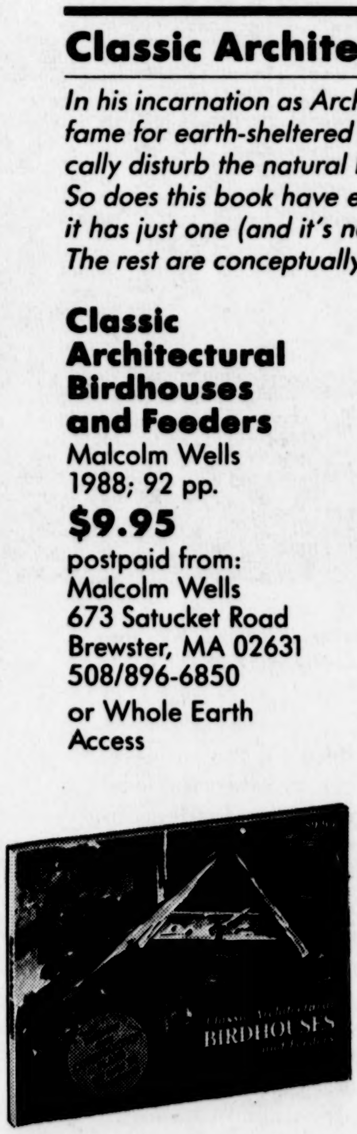
The time to make a house termite-proof is when it is being built — don't skimp on the termite protection and then have to use toxic chemicals to alleviate the problems later. . . .

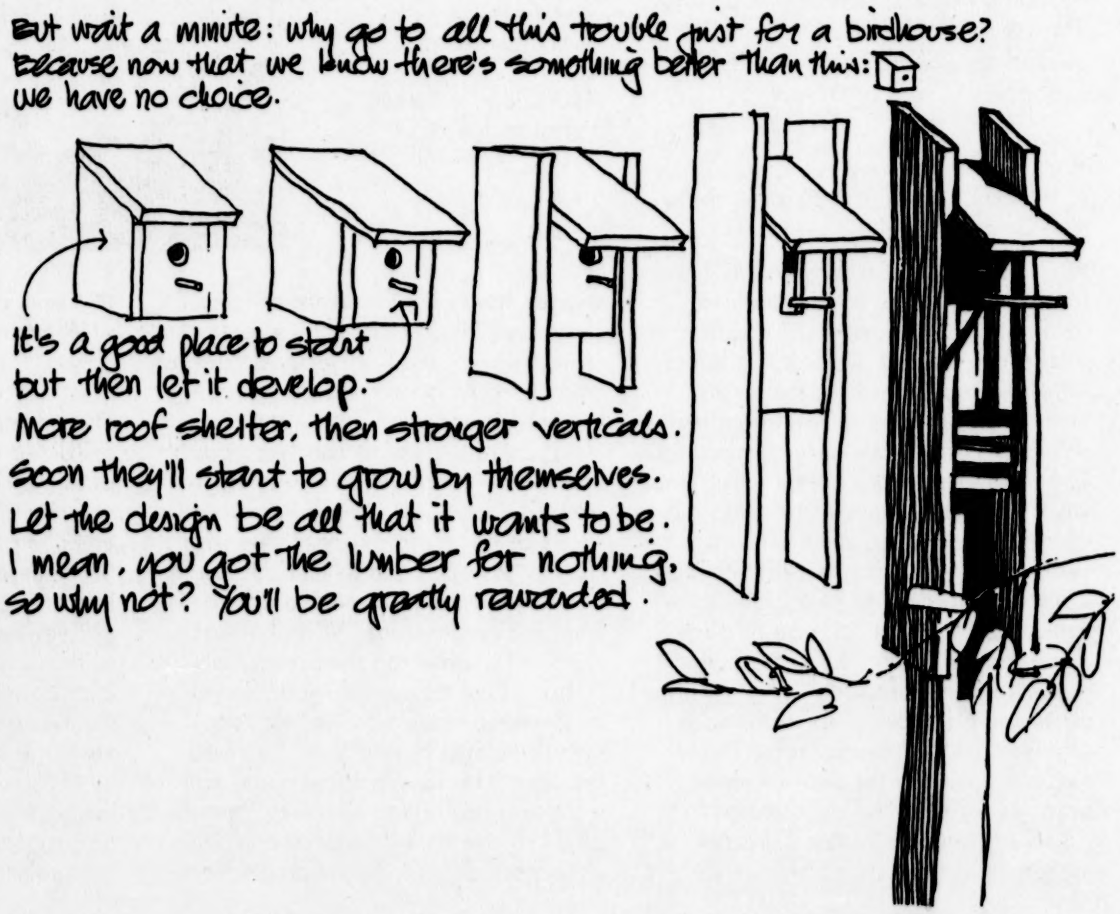
Installation of noncorrosive metal termite shields at basements, crawlspaces, or chimney foundations; on concrete piers with saddle and wood post; and at entrances with wood steps or floor is the simplest and most effective protection. When properly installed, these shields prevent termites from reaching the woodwork from the earth. Copper shields are preferable, but galvanized steel is acceptable and more cost-effective.

Classic Architectural Birdhouses and Feeders

In his incarnation as Architect, Malcolm Wells has gained fame for earth-sheltered designs that visually and physically disturb the natural landscape as little as possible. So does this book have earth-sheltered birdhouses? Yup, it has just one (and it's not for burrowing owls, either). The rest are conceptually more conventional, but in design they're imaginative and done to a high aesthetic standard. And that's the real reason for this book, I think; to help you develop your own design sense. Mr. Wells doesn't furnish totally perfected do-it-yourself plans, he just gets you started down the right track. Very fine in every way, especially the illustrations. —*J. Baldwin*

Classic Architectural Birdhouses and Feeders
Malcolm Wells
1988; 92 pp.
$9.95
postpaid from:
Malcolm Wells
673 Satucket Road
Brewster, MA 02631
508/896-6850
or Whole Earth Access


BIRDHOUSES


But wait a minute: why go to all this trouble just for a birdhouse?
Because now that we know there's something better than this:
we have no choice.
It's a good place to start
but then let it develop.
More roof shelter, then stronger verticals.
Soon they'll start to grow by themselves.
Let the design be all that it wants to be.
I mean, you got the lumber for nothing,
so why not? You'll be greatly rewarded.

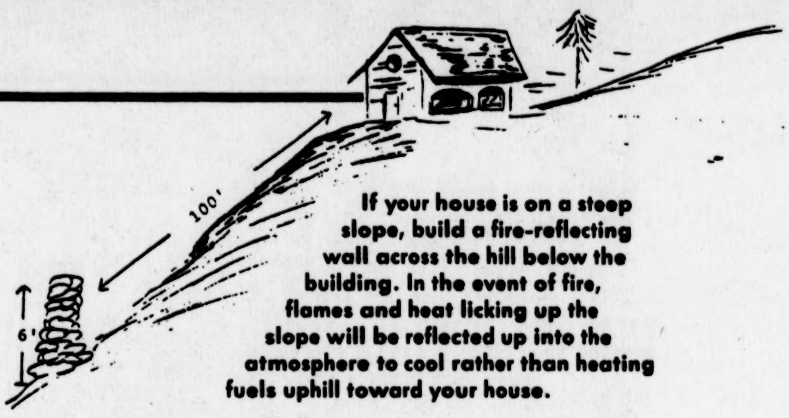
Wildfire Across America • Defender Foam Systems

Do you live, as I do, in fear of wildfire destroying your homestead? This book gives the information you need to defend your turf: how to landscape and detail your house fire-retardantly, how to fight fire until the official firefighters get there. This information isn't always easy to find because many fire districts demand evacuation instead of home-defense. Of course, there are times when flight is the best move. But there are times when a skilled, resolute stand can save your place or at least hold the line till help arrives. If you live in a vulnerable place (and this can be right in town) you need to know this stuff.

You'll also need some means of fighting fire. One of the best is to spray non-toxic Silv-ex foam. The Defender Foam System sucks water from pool or even a hot tub, adds foam concentrate, and sprays it on your house or landscaping, rendering it damply resistant to ignition for up to six hours. Puts out fires, too, much more effectively than water can. A similar system saved many structures in last summer's Yellowstone Park fire. —J. Baldwin

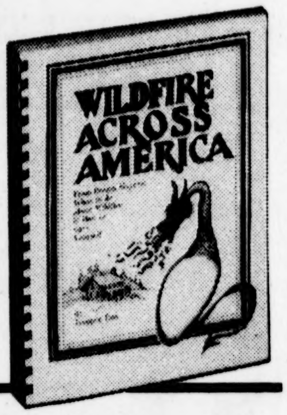
Defender Foam Systems: $1100-$1600. Brochure **free** from Brushfire Hydrant Co., 1818 B Mount Diablo Blvd., Walnut Creek, CA 94596; 415/932-5080.

Defender Foam System, awaiting deployment.



If your house is on a steep slope, build a fire-reflecting wall across the hill below the building. In the event of fire, flames and heat licking up the slope will be reflected up into the atmosphere to cool rather than heating fuels uphill toward your house.

Wildfire Across America
Trooper Tom Lugtenaar
1988; 120 pp.
$14.95
($17.45 postpaid) from:
Trooper Tom's Fire
Prevention Company
P. O. Box 44
Manzanita, OR 97130
503/368-7099



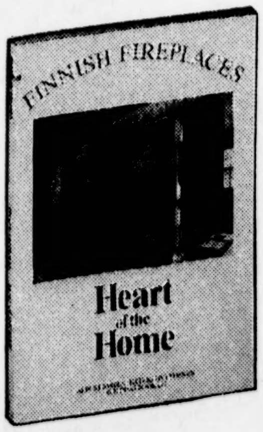
Finnish Fireplaces

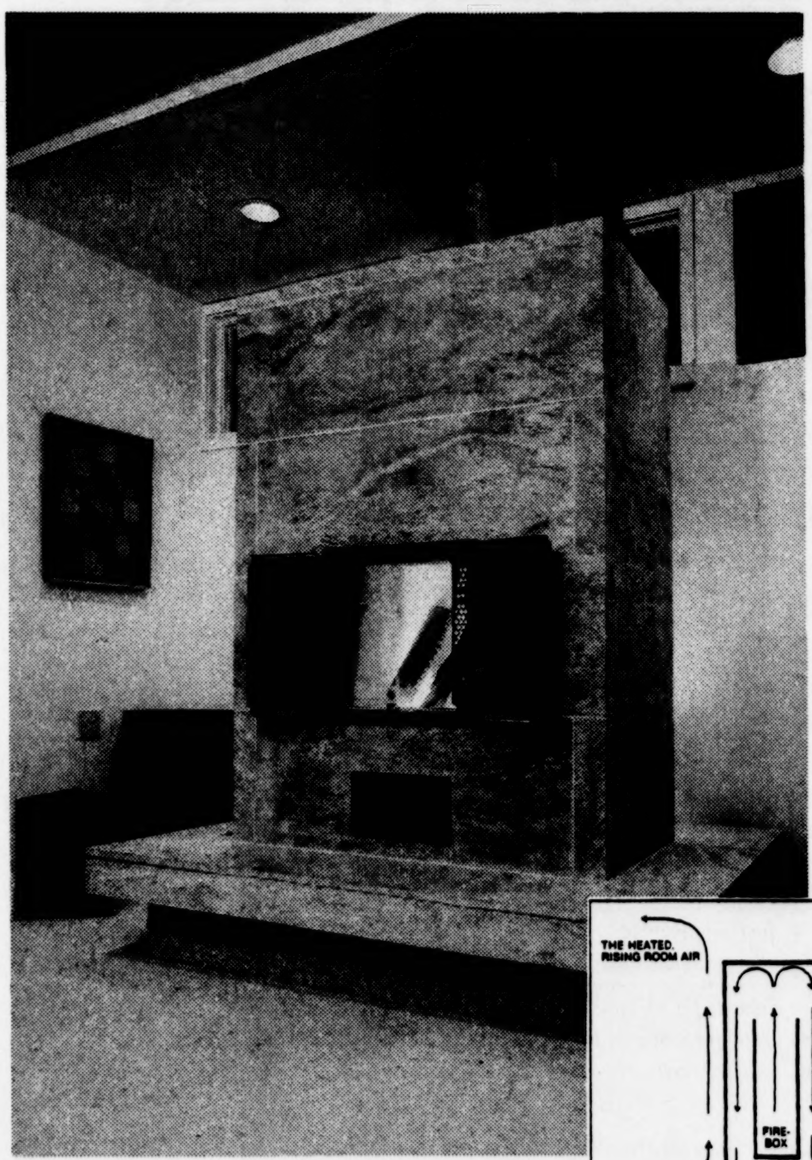
The etymologically distinct definitions of the words hearth *and* heart *come together when describing a place that is the center of a culture. Forced-air furnaces and electric radiant heaters hardly serve the same function, although other wood-burning stoves and even kerosene heaters may provide at least some succor in times of great stress and late-winter glumphs.*

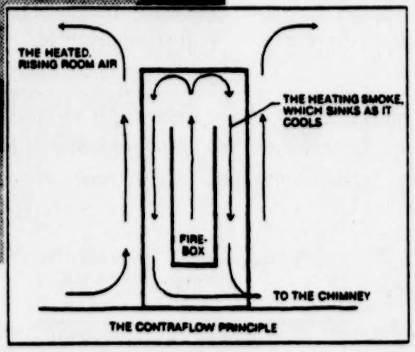
Northern peoples with long and intact material cultures, especially the Finns, have evolved a clean-burning masonry heater which, by its bulk and radiant attractiveness, truly can become the heart of a home. I imagine these massive fireplaces to be a sleeping beneficient Grendel, curled up on the hearth and oh-so-eager to protect the household.

This book is intended to teach design of these heaters, their function, construction, and installation to owner-builders and to masons. It serves them well.
—Don Ryan

Finnish Fireplaces
(Heart of the Home)
Albert Barden
1988; 102 pp.
$25
postpaid from:
Maine Wood Heat Co., Inc.
RFD 1, Box 640
Norridgewock, ME 04957
207/696-5442






THE HEATED, RISING ROOM AIR
THE HEATING SMOKE, WHICH SINKS AS IT COOLS
FIRE-BOX
TO THE CHIMNEY
THE CONTRAFLOW PRINCIPLE

A custom-made soapstone heater with a core of firebrick. This is an ideal use of materials. Firebrick and castable [refractory: aluminum cement] is the core where the heat transfer should be slow, and soapstone is the facing where the heat transfer should be rapid. Mason: Dale Hiser.

THE DEL CABO PROJECT

BY DIANA FRIEDMAN

A Mexican Collective Exports Organic Produce To The U.S.A.

WHEN SANDY BELIN AND LARRY JACOBS, two organic farmers from Pescadero, California, planned their first vacation to the warm seas and sunny skies of the Los Cabos region of Baja, Mexico, they intended to hike and swim like most of the other tourists there. But perpetual farmers that they were, it didn't take long for them to notice the agricultural potential of the region: fertile soils, ample water and warm sunny winters. Within a few days of their arrival, they began toying with the possibility of farming in San Jose del Cabo in the winter, when it was too cold in Pescadero. However, their plans changed dramatically when it became clear that there were already plenty of small farmers in the region. What there wasn't, was a market.

Now, four years later, Sandy and Larry, along with Steve Farrer, another organic farmer from California, spend each November to June in Baja co-directing the Del Cabo project, a network that airfreights the organically grown vegetables of the farmers of the Ejido San Jose del Cabo to the rapidly expanding organic and specialty markets in California. Instead of starting their own farm and competing with local growers and, as Larry and Sandy put it, "hiring a bunch of people to work for us and exploiting them," they went to work with the farmers. "The idea was," Larry says, "to teach [the growers] about organic farming and introduce them to a market they didn't have."

Although Los Cabos has always been a popular resort area, it did not experience the negative ramifications of being a tourist center until after 1973, when the completion of the first highway linking it to Tijuana ended its relative isolation. As the highway brought increasing numbers of visitors and hotels, many young people

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I never used to buy fresh tomatoes in the wintertime, knowing that they came from Mexico and that the heavy amounts of chemical pesticides used to grow them were unregulated by the Mexicans, and virtually uninspected by the U.S. The collective described here is changing all that. It is the dead of winter as I write, yet the tomatoes I bought today from the tip of Baja California are sweet and juicy, and organically grown.

This is also a story about individuals doing third-world development aid that works. It came to us initially as a video; the video-that-becomes-article is something we are seeing increasingly.

The video is called "El Otro Lado del Cabo (The Other Side of del Cabo)" and is available for $24.95 postpaid from Veritable Vegetable, 1600 Tennessee Street, San Francisco, CA 94107. Wholesale produce suppliers interested in finding out more about these products should write: Del Cabo Project, c/o Larry Jacobs and Sandy Belin, P. O. Box 508, Pescadero, CA 94060. Diana Friedman, who also wrote the script for the video, is a free-lance writer specializing in sustainable-agriculture projects. —Richard Nilsen

◄ *Carlos Ruiz (left) inspects his tomato plants for insect damage with Steve Farrar. Staking and tying the plants to increase quality and yield is a new technique for these farmers, as are the organic production practices.*

* * *

were pulled away from the farms to work in the more lucrative tourist industry. Although the tourist sector could certainly be commended for providing jobs, it no doubt offset this service by contributing a substantial rise in the costs of local goods and services while doing nothing to support local industries. Rather than buy locally grown food, for example, hotels import produce from large growers on the Mexican mainland, or frozen vegetables from the U.S.

This situation inspired Larry and Sandy to help the farmers of the Ejido San Jose del Cabo, one of hundreds of semi-collectives set up by the Mexican government's agrarian reform law of the 1920s. The object was to find a market for their produce so that both older and younger generations could continue to farm. The two North Americans were also motivated by their observation that those businesses not linked to tourism and the U.S. dollar had suffered even more in the last few years, as the peso continued to depreciate dramatically, and the Mexican economy had become increasingly dependent on the U.S. dollar. Local farmers, they concluded, had to be tied to U.S. currency either indirectly or directly, if they were to survive.

It is easy to see how Sandy and Larry fell in love with the Los Cabos region of Baja; large jagged granite peaks tower over farming valleys and small desert cacti march right to the sea, adorning parking lots and oceanfronts. This area of Baja is distinct from the rest of the desert peninsula, for it lies in a temperate zone and has plenty of water for farming. In the autumn, wild rains come flying through the area, bringing fertile silt to the fields. And while the lands of San Jose may look barren and infertile, they produce a dazzling array of cucumbers, zucchini, tomatoes, peppers, and eggplants.

LARRY AND SANDY met on an organic farm in Maine 12 years ago and have been working and farming together ever since. It takes only a moment of observing them moving slowly through the fields, stopping to inspect a tomato or cucumber plant, to see that to them, organic farming means accepting a stewardship for the earth.

Their particular commitment to farming without synthetic chemicals in Mexico results from their experiences with unregulated agricultural production in other parts of Mexico. "You couldn't have fabricated a worse situation," Larry says. "I've seen Mexican workers mixing Malathion with no rubber gloves or masks, just their bare hands, and then spraying it underfoot. The people who sell this stuff don't care."

The del Cabo project is commendable because it offers safer and healthier modes of production, but with the high prices its produce commands, it would not be successful unless consumers were concerned about safe consumption. And clearly they are, judging by the constant sell-out of del Cabo produce. Many shoppers in the San Francisco Bay area, well aware of the hazards of eating non-seasonal produce from other countries, have welcomed the high-quality and clean del Cabo produce not only because it is one of the few positive alternatives to eating unsafe Mexican produce in the winter, but also because it provides practically the *only* available organic supply of summer vegetables from December to April.

Sandy says that one of the largest challenges was developing the means for the growers to absorb all of the new organic-pest-control information they were given. "It's one thing for them to understand it being explained," she says, "but another for them to be able to fully take it in. It's not something they can pick up overnight.

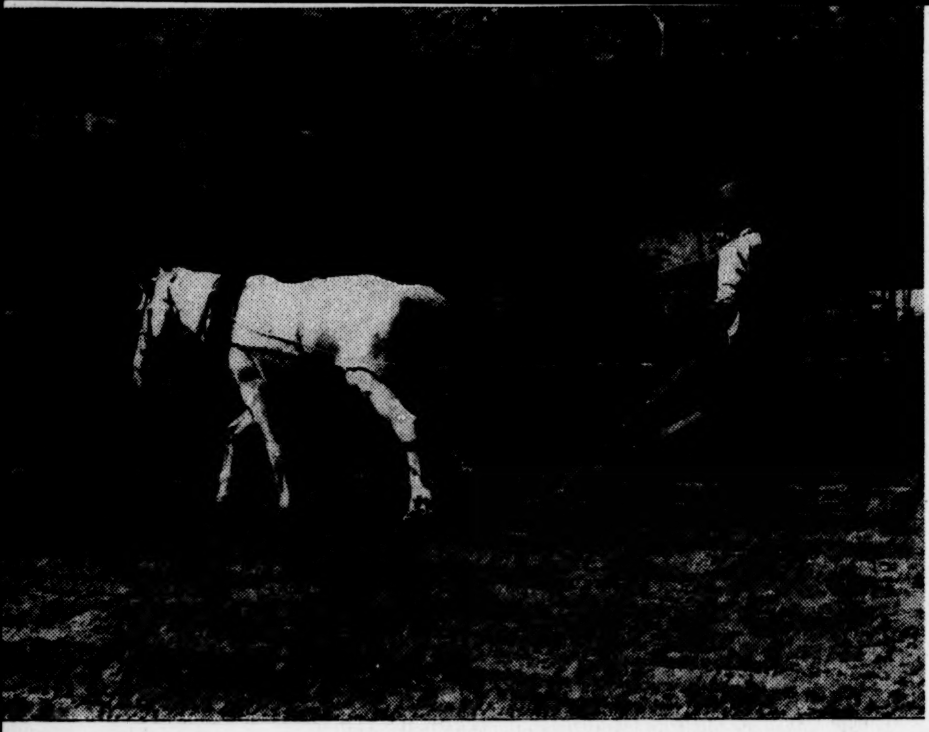
"The different sprays all get different names," she continues, "to make them more recognizable. The names we've given the materials come directly from their appearance. Maxicrop, a seaweed foliar spray, looks like chocolate when it's mixed with water and it's often sprayed with milk and sugar, so we named it 'chocolate.' *Bacillus thurengensis,* a worm-killing virus, comes in a red can and is consequently known as simply 'the red can.' "

Another innovative approach the couple used was a thorough immersion in the lives of the farmers their first year in San Jose del Cabo. "We spent the entire year," says Sandy, "learning how they farmed. We did beds, watered, planted, transplanted, dropped seeds and covered them with our toes, and harvested."

Larry adds, "We felt that if we were going to develop a relationship with these people, we needed an appreciation of methods they'd been using. It was important not to have the perspective that we had a better way, but to affect them as gently as possible. These people have been doing things a long time and they know what they're doing. We needed to learn from them, and then, maybe, our experience would have something to offer them."

The payoff from this approach is obvious not only in the agricultural success of the project, but in the effect it has had on developing the mutual respect and closeness that now exist between the couple and the participating growers.

Anselmo Burgoin, like most of the other growers a quiet, older man, describes his first reaction without a moment's hesitation. "When Sandy and Larry first



◄ *Anselmo Burgoin preparing his field for planting. Many of the farmers in the Ejido San Jose del Cabo still use horse-drawn ploughs.*

came to us and told us about the project, we said, why not? We were accustomed to pesticides because they had been recommended by the department of agriculture. But, when I was a kid we used to do all this without fertilizers, or pesticides — it was all natural — we took what the land gave. So far, the results have been effective."

Angel Salvador Cesena, former president of the Ejido San Jose del Cabo and also a farmer, was originally quite skeptical but is now a convert. "When Larry and Sandy first came to me, I thought this was going to be an absolute failure," he says. "But they insisted, and when someone likes to work in a particular way, I like to support it. I saw they were interested."

Pleased at having been able to help set up the project and select the original growers, Salvador explained that it was a low-risk venture for the pioneer participants, since they didn't have anything tangible to lose, except for time spent in the fields. The project was presented as a voluntary experiment to those growers whom Salvador felt had integrity and good soils. He also chose farmers who had used natural fertilizers such as manures and composts, and who had land that had not been sprayed chemically for at least one year.

When we discussed his responsibilities as president of the Ejido, it became clear why Salvador had been interested in working with Larry and Sandy. "One of my roles as president of the Ejido was to look for markets for our agricultural product. We have been asking the Mexican government for assistance and so far we have received none."

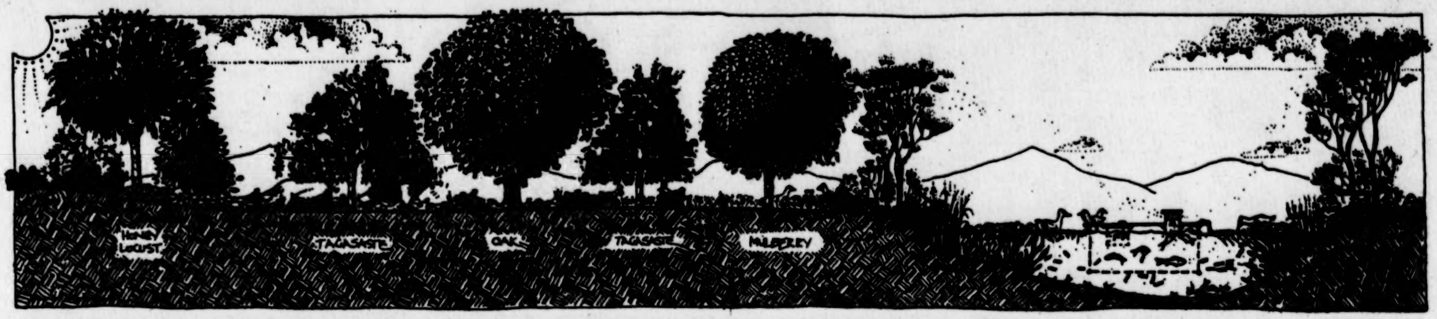
Salvador confirmed that the project did indeed fit within the structure of the Ejido, which he said falls somewhere between a collective and a kibbutz. While ejiditarios share tools and water, whatever they produce on their own land is theirs to sell themselves. He pointed out that the project, in which 16 farmers were involved in 1987-88, lives up to the goals of the Ejido, since all growers are allowed to participate provided they follow the guidelines of organic production. All are paid the same price for their crops, and come together under the umbrella of collectivismo by pooling their product under one label.

It remains somewhat unclear what would happen were Sandy and Larry to leave. While Herlindo Espinosa, one of the growers, was quite sure the ejiditarios could run the whole show by themselves, the couple disagreed. Sandy pointed out that she and Larry had created a situation of dependency rather than self-sufficiency, but explained that they were training local people to assume all tasks, including pest identification and control. She stressed that it was only the third year of the project, and that she and Larry still had a lot to learn. They agreed that their ultimate goal was to minimize their own role, to the point of one day being unnecessary.

With the 16-hour days, the daily frustrations, did they ever think about packing it up? What was it that inspired them to stay?

"It's certainly not the money,"said Larry with a laugh. Then, more seriously, he explained: "We were interested in setting it up as a development project as well, seeing how far could you go in teaching people to grow without chemicals. Could you work in a Third World country and not just teach them how to do it, but make it economically viable? It's not just the lack of poisons," he concluded, "but providing them with economic alternatives. For organic farming to be successful in the Third World, it has to be economically viable." Sandy agreed and added, "For me it's being able to help people, interacting with the farmers. And for them, it's not so they can have a color TV, but so they can send their kids to school, and have better food."

Last June, when I saw Larry and Sandy in California, they proudly announced that del Cabo's produce had been arriving in San Francisco for a few weeks since they had been back in Pescadero. For the first time, the members of the Ejido were doing the entire process independently. And with close to 50 new growers wanting to join, Larry was going to train Salvador to be the on-site inspector/certifier of the farmers' fields. As I munched on a delicious dried tomato, the newest del Cabo product, I thought of Salvador's closing words: "We're learning that a well land is like a healthy organism. If it's well fed, it rejects illnesses. The same with plants." He had paused, looking at his young son placing beneficial predatory wasps in the tomato plants. "Our grandparents worked the land this way, but it was never passed on to us. Now, we have it." ■



An evolved system provides forage, firewood, aquatic and animal products. Larger foragers (sheep, pigs) can be grown seasonally. The system provides its own mulch and fertilizers. The mature system requires management rather than energy input, and has a variety of marketable yields (including information).

Permaculture

Bill Mollison has taught permaculture design courses all over the world, so it's no surprise his new book is organized as a training manual for use by an individual or groups. Topics covered include affordable housing, clean water and air, decent neighborhoods, landscape restoration, sustainable agriculture, ethical investments, economic development, unpolluted food and sane organizations. The chapter on patterns in nature — detailing what he calls "pattern understanding" — is a sparkling gem of a read (with beautiful illustrations) unlike anything I've seen anywhere else. ***Permaculture*** *is so full of information that if information had mass, the book would surely be a black hole — yet a generous dose of sketches and color photos, lucid prose and lively anecdotes make it easy reading in spite of its size (8½" × 11", nearly 600 pages) and technical depth. Fifty cents from the sale of each copy goes to plant trees to replace those cut for pulp for the paper for this book. Even the paper is a special formulation, expected to outlast normal hardbound book papers by over 500 years. All profits from sales go into a Permaculture Institute Third World Fund to assist permaculture education in poor areas of the world. If the price is too expensive for you, get your library to order it. An extraordinary book. —James Kalin*

This is that book everybody was looking for 20 years ago. The one that explains how to grow food, fix broken land and devise a better society — anywhere you happen to live. Couldn't find it then because the only folks doing decentralized, ecologically sustainable agricultural systems in those days were scattered around the Third World, and they didn't publish. Well, here it is — a treasure-house of keen observation, responsive design, patience and hope. —Richard Nilsen

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Permaculture [*per*manent agri*culture*] is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration of landscape and people providing their food, energy, shelter, and other material and non-material needs in a sustainable way. Without permanent agriculture there is no possibility of a stable social order.

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Mollisonian Permaculture Principles:

1. Work with nature, rather than against the natural elements, forces, pressures, processes, agencies, and evolutions, so that we assist rather than impede natural developments.
2. The problem is the solution; everything works both ways. It is only how we see things that makes them advantageous or not (if the wind blows cold, let us use both its strength and its coolness to advantage). A corollary of this principle is that everything is a positive resource; it is just up to us to work out *how* we may use it as such.
3. Make the least change for the greatest possible effect.
4. The yield of a system is theoretically unlimited. The only limit on the number of uses of a resource possible within a system is in the limit of the information and the imagination of the designer.
5. Everything gardens, or has an effect on its environment.

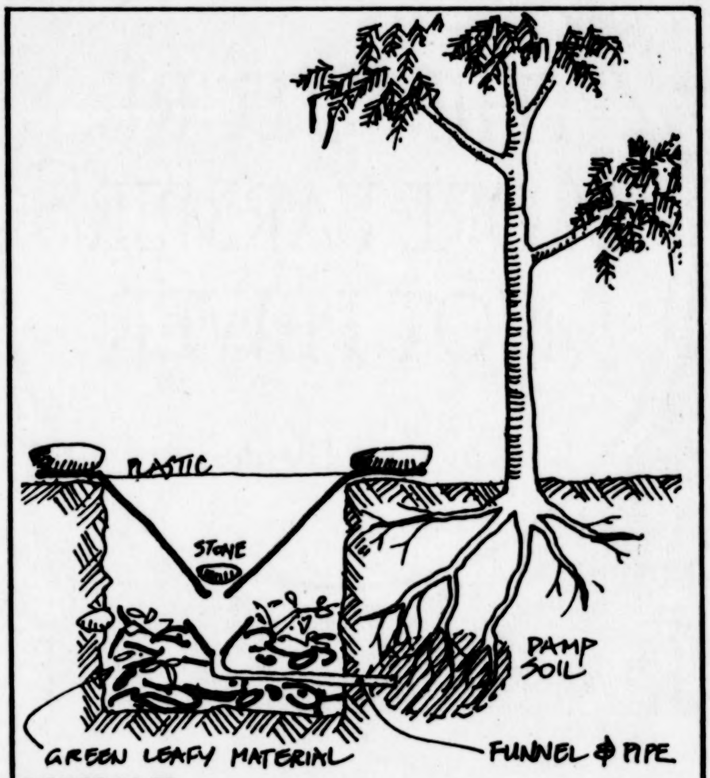
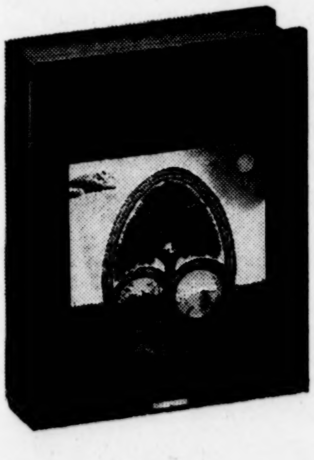


FIGURE 11.75
PIT EVAPORATION SYSTEM.
Green leafy material in a pit gives off water which condenses at night on the underside of a plastic cone, perforated at the centre to allow rain through; by adding fresh leaves, dirty water, or urine a nearby hardy tree can be sparsely watered, or enough freshwater for a drink obtained.



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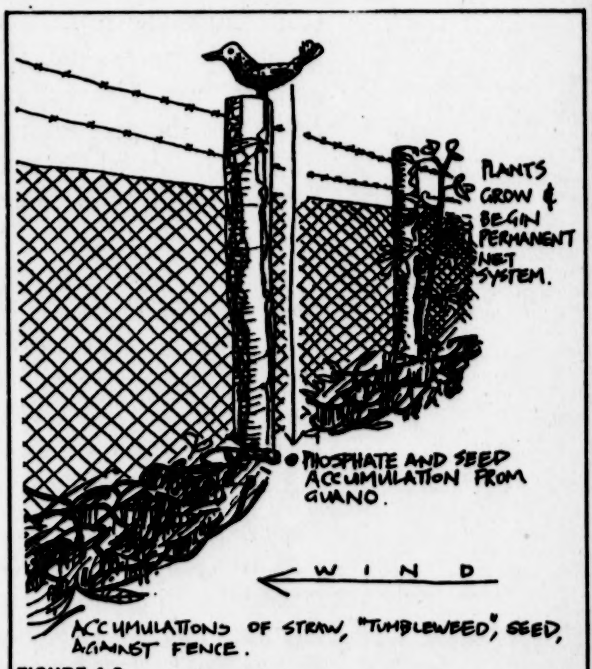

PLANTS GROW & BEGIN PERMANENT NET SYSTEM.
PHOSPHATE AND SEED ACCUMULATION FROM GUANO.
WIND
ACCUMULATIONS OF STRAW, "TUMBLEWEED", SEED, AGAINST FENCE.

FIGURE 4.9
At powerlines and fences, perched thrushes and wood pigeons defecate, so that each post gains seed and manure, and each may generate a plant from nearby forests. Perches plus disturbed soil produce this result. Fences also act as mulch accumulators across wind.

THE FUTURE: MORE FARMERS NOT FEWER

by Gene Logsdon

ALTHOUGH THE PERCENTAGE of Americans engaged in farming has been decreasing steadily since the ink was hardly dry on the signing of the Louisiana Purchase (from 90 percent of the population then to 2½ percent today), and has been decreasing in actual numbers since 1916, the one continuous viewpoint I have heard in my 50 years among farmers is that the number of farmers can't go any lower. I have personally known all the editors of the prestigious *Farm Journal* except the first, who started the magazine 110 years ago, and at some point in their careers, every one of these astute gentlemen opined editorially or privately that the decline of the farm population was about to bottom out. Even Wheeler McMillen, who in the thirties wrote a book entitled *Too Many Farmers* (thereby earning himself the undying enmity of small farmers everywhere) thought that the right number to get down to was about 9 million, more than four times what it is today. And of the 2.2 million remaining (or whatever the number is this week), only about 700,000 contribute significantly to the commercial food market. All of which at least means I am in good company when I continue the naive tradition of optimism in the face of statistical and economic reality and declare without batting an eye that the family farm is not dead, and that, far from continuing to decrease, farms and farmers are on the increase.

Although megafarms will continue to be an important part of the food production business, I don't think the future belongs to them at all, despite the predictions of wishful-thinking agribusiness interests. The real action is going to occur in comparatively small-scale food production systems now sprouting up everywhere, and in those which have handily survived the economic crunch of the eighties. In short, there is no better time than right now for dedicated young people, determined to own and operate their own businesses, to make it in agriculture.

Gene Logsdon farms and writes in Upper Sandusky, Ohio. He has been commenting on American agriculture for 30 years. His fourteenth book, forthcoming from North Point Press, will be an eyewitness account of the decline of rural American society. His last article in these pages was "Amish Economics" (WER #50, p. 74).

The photographs that accompany this article are from the Tasting of Summer Produce, an annual get-together in Oakland, California between specialty-crop growers and a fascinated, and sometimes drooling, public. This year's Tasting will be held Sunday, August 20. Information, including consultation on how to organize a similar event where you live, is available from Tasting of Summer Produce, The Oakland Museum, 1000 Oak Street, Oakland, CA 94607. —*Richard Nilsen*

I can give three reasons for my prediction that the number of food and fiber producers (food-and-fiber-producer is the only definition of farmer that works) is about to increase: (1) Historically, in all past civilizations I can discover, the denser the population becomes, the smaller and more numerous the farms become; (2) financially, the economies of scale that apparently rule manufacturing do not really apply to any sustainable kind of food production — when you count all the costs, it is cheaper to raise a zucchini in your garden than on your megafarm; and (3) socially, people are beginning to understand they really are what they eat and are demanding quality food that megafarms can't supply.

New attitudes toward food are not only increasing the number of farms, but more importantly, are bringing a new kind of farmer to the land — a farmer with roots in urban culture, not traditional rural culture. While commercial agriculture stolidly continues to pile up government-subsidized mountains of surplus hybrid corn and hard red wheat, these new farmer-entrepreneurs bend an ear to the marketplace and produce the food consumers want. They are often called specialty farmers, but they are more apt to refer to themselves as "guerrilla marketers" — they strike where the big boys aren't looking. They come in a variety that is mind-boggling. *The New York Times,* noting that "there's not a New Englander or farmer in the lot," listed in a recent article by Marian Burros such disparate new farm products in New England as goat cheese, farm-raised oysters, handpressed cider, hydroponic spinach, stone-ground flours and meals from locally grown organic grains; baby lambs for the hoity-toity restaurants of New York and Boston; pheasant and other once-wild game, such as buffalo; and dairy sheep producing roquefort cheese.

All across America, hundreds of small sheep flocks have come into existence in the last ten years to supply wool directly to the bustling cottage handspinning and weaving industry. Angora goat farms have become almost common, even in the corn-and-soybean wastelands of the Midwest. A feedlot in Nebraska now raises ostriches, some of which bring $22,000 a pair. In Michigan, Juliet Sprouse told me last year that female llamas she and her husband raise on their 35 acres had skyrocketed in price from $1,500 six years ago to $10,000 now. New Jersey vegetable farmers, taking a cue from the West Coast, are learning to market squash flowers for food as well as squash fruit. Catfish farms thrive in the South as consumers learn how good a humble, downhome fish can taste when raised in unpolluted water. Crayfish farms are on the upswing in the South, too, and very likely, if humans persist in using their rivers and oceans as a sewage-disposal system, *all* fish and seafood will eventually be raised on domesticated "farms."

Samuel and Louise Kayman are good examples of specialty farmers developing new markets. In 1983 they began making high-quality yogurt from their herd of Jersey cows at Stonefield Farm near Wilton, New Hampshire. Sam had quit his job in the defense industry in the sixties. Their market exploded and they could not keep up with demand. The Kaymans sold their cows and concentrated on the yogurt, buying Jersey milk from surrounding farmers and paying them a premium for their milk over the price the outrageously expensive, tax-funded, dinosaur government subsidy program allows farmers in the conventional market. They brought in Gary Hirshberg from New Alchemy Institute to provide financial and overall management. By 1988 they had hit $3 million in sales and moved into a half-million-dollar plant away from the farm, still paying a premium for Jersey milk. "Significant profit is still in the future," says Hirshberg, "but there's a tremendous non-monetary reward we gain from customer satisfaction. We get hundreds of letters from people who love our yogurt and that's very important to us. We also provide a better profit picture for the farmers who sell milk to us, which is part of our overall goal of revitalizing rural areas. When we succeed at those goals there's an intellectual payoff more valuable than money."

Those words are a fairly accurate modern translation of the traditional farmer's reverence for and stewardship of the soil entrusted to him. I heard the same echoes from Jay North who, with his wife Pamela (and now 40 employees), grows about a million dollars worth of edible flowers and herbs a year — not bad for a 37-acre farm, even in California. Admitting he didn't have a computer yet, Jay explained: "If I computerized this business I probably wouldn't need as many employees and I wouldn't like that. The success of this business depends a lot on a sensitive relationship between humans and the land. We would rather employ people than machines." North's background? Previously he was a hairdresser.

Thus an historic shift takes place. The Vergilian ecology and careful husbandry of the traditional yeoman farmer, that gave way to the all-consuming dreadnought of agribusiness economics, now reappears in the unlikely form of the exurban farmer, fleeing industrialism, characterized, as Marian Burros says in the *Times,* "by an environmental awareness often influenced by the 1960s counterculture movement: a desire to be free of the constraints of the crowded city and 9-to-5 jobs and a belief that success can be

It is my contention that gardens are acting as the incubators of the new farm ecology.

achieved by working 14- to 16-hour days." Jefferson's agrarian dream returns in modern guise.

So many specialty farms are starting up that it is hard to keep track of the number of new growers. Jay North almost complains that there are too many, driving the price of baby vegetables, salad greens, edible flowers, and other high-value crops down to where he fears the profit will go out of them (the old Wheeler McMillen syndrome). He guesses the number in his area has gone from about 4 to 30 in the last couple of years.

California's *Farmer-To-Consumer Directory* lists about a thousand certified roadside farm marketers. The foods offered include everything from baby beans to nasturtium blossoms to feijoa (pineapple guava). The *Directory* also lists 100 Farmers' Markets and 22 regional "Farm Trail" organizations that promote their members' locations and products. The story is the same in New England. While nationwide, more than a million farms were lost in the last 20 years, and while more than a million people have left the land since 1980, Massachusetts, of all places, gained over 500 farms since 1978. Maine, despite a very bleak picture in its commercial potato fields, gained over 400. In the Midwest, Minnesota gained 2,000 farms in the latest census, and Wisconsin 1,000. Georgia and Florida gained 1,000 each, too.

However, I discount census numbers, up or down. By census definition, a farm is an establishment from which $1,000 or more of agricultural products are sold during the year. There are thousands of homesteads where nothing is sold, but which produce over $1,000 worth of food, including thousands of the more than 30 million gardens in this country. In 1983, some imaginitive statistician figured out that the value of food raised in American gardens exceeded the profit in all of commercial agriculture that year.

It is my contention that gardens are acting as the incubators of the new farm ecology. In Berkeley, California, a city "farm" of one-third acre grosses more than $300,000 in salad vegetables for Konakai Farms (*HortIdeas,* June 1988). An article in the Salem, Oregon, *Capitol Press* of August 19, 1988 tells about Neil Lawrance's three-quarter-acre "farm" from which he says he makes a living raising high-priced vegetables.

Mark Musick, who now works as a buyer for Larry's Market, a local supermarket chain (and who deserves the title of Guru of the Guerrilla Marketers), works hard as liaison between the store and garden farmers, some of whom hitherto were too small to interest supermarkets. Just to list a few of the foods he deals in makes the palate quiver in keen anticipation — exotic pepper varieties from Krueger Pepper Gardens in the Yakima Valley; wild blue huckleberries, harvested by Yakima Indian families; Yellow Finn potatoes and Romanesco broccoli from Dungeness Organic Produce; several varieties of red, white, and blue potatoes; Spanish Roja garlic; nettles (along with a recipe for cream-of-nettle soup from famous chef Karl Beckley in Seattle); boletus mushrooms and cattail corn from Mike Maki, who has leased 40,000 acres of forestland for commercial foraging of wild foods (making his perhaps the largest "farm" operation in the world); shungiku and baby bok choy from a co-op of six Laotian-refugee farmers called the Indochinese Farm Project. Musick was a long-time farmer at Pragtree Farms, the home of Tilth Publications north of Seattle, where he helped spearhead the new interest in unique foods, especially salads, as a way to make small farms both ecologically sane and economically profitable. Pragtree's "Impromptu Salad," which contains 20 or more different herbs, salad vegetables and edible flowers mixed together before packaging, costs $28 a pound and since being featured in *Harrowsmith* magazine has become nationally renowned. "Before we were grossing $3,000 an acre on five acres of conventional vegetables. But cabbage at 25¢ a pound just didn't pay. What we were able to do by switching to lightweight, high-value specialties like salad vegetables, herbs and edible flowers was reduce farmland from five to one-half acre, sell both tractors, hand-dig the plots, and still make the same amount of money."

Nor is the new yeomanry confined to the far-out East and West Coasts. In New Mexico, Richard Deertrack has made a success of selling traditional blue corn flour by mail, the crop grown by his fellow Pueblo Indians. In southern Indiana I have watched a remarkable friend, Ed Fackler, struggle for years to establish a commercial organic fruit orchard. He had previously worked for the railroad. To anyone aspiring to the ranks of exurban yeomanry, he makes a good model, and I can tell you his secret in four words — intelligence plus pure muleheadedness. Eventually he mastered everything known about organic orcharding and finally concluded after 11 years that he couldn't raise fruit that way in his humid southern-Indiana location. But rather than give up his high environmental ideals, he worked out an orchard agronomy that uses only a small portion of the toxic sprays conventional orchardists regularly douse their trees with. He started a mail-

order nursery, emphasizing trees and varieties that perform well in his locale. He also started selling richly flavored old and unusual varieties of apples and other fruits to the Louisville market. The Louisville *Courier-Journal* did a story on his unusual apples last year, and he sold out completely in ten days, at premium prices. "People went ape over these different kinds of apples," he says. "We had customers from as far away as Bowling Green, Kentucky, and central Illinois. One broker drove down from Cincinnati to set up next year's purchase of 200 bushels of Scarlet Gala apples and all the Asian pears we could furnish. At the same time growers nationwide were taking a beating on standard apple varieties, which were in oversupply because, in my opinion, they have poor fruit quality." Fackler says that he began to pay special attention to the Gala apple, now his favorite, when he noticed that his little daughter would invariably pass up the other 500 or so varieties in his experimental orchard to feast under the Gala tree.

Parker Bosley, of Parker's restaurant in Cleveland, Ohio, has played the same role in Cleveland that other innovative chefs like Wolfgang Puck and Carl Beckley have on the West Coast. He went directly to the farms and told them what he wanted and how he wanted it — and that he was willing to pay for it. He established what *Ohio* magazine calls "an old-farmboys' network" reminiscent of Mark Musick's program. Bosley's network supplies him with, among other things, rabbits and ducks from Ashland County and lambs from Portland County. Two women from Cleveland Heights grow blue oyster mushrooms in their garage for him. He buys veal from Geauga County, berries from Lorain County and thick Guernsey cream from Wayne County. During the growing season he uses all-local produce, paying premium prices for all.

OBVIOUSLY, PEOPLE WHO EAT edible flowers or pay $28 a pound for salad greens are not eating to live. But in a deeper sense, that is perhaps exactly what they are doing, since these foods are almost always raised without pesticides. After years of hearing from conventional agribusiness that consumers would not pay for quality food or (heaven help us) organic food, quite the opposite is suddenly true. This is new. For years the image of the "good" little housekeeper was bargain-hunting Mom, trundling off to the grocery store to take advantage of every coupon, every sale, every loss leader offered. Virtue as a good shopper consisted of finding the cheapest food in town. Now food is more and more seen as an enhancer of health or beauty or status, as having not only intrinsic health value but also recreational value like beer and whiskey. While it is true that the keen edge of demand comes from the social levels that have lots of disposable income, people in general are deciding good food is worth paying a little more for.

Whether "organic," or simply free of pesticide residue, or just plain fresh and flavorful, the specialty crops from the new farms are also deemed by consumers to taste better. "It's not just status-seeking yuppies influencing the market," says Jay North. "Our main customers are women between the ages of 45 and 65 who really know their foods." Gary Hirshberg, at Stonyfield Farm, points out that quality foods are not necessarily that expensive either. "Not at the retail level. Our yogurt is only about 5¢ a cup more than the common brands."

At this point, I wish the reader could turn quickly to the first chapter of Jane Jacobs' brilliant 1969 book, *The Economy of Cities.* Jacobs' thesis is that civilization did not necessarily proceed by orderly evolution from a hunting-and-gathering stage, to domestic farming, to villages, to towns, and finally to cities. Instead she argues that cities actually preceded a genuine agricultural economy. "Cities are not built on a rural economic base. . . . Quite the reverse is true. Rural economies including agricultural work are directly built on city economies and city work." Just as alfalfa was grown in French gardens for a century before it became a commercial farm crop, as Jacobs notes, so too we can observe the same process with salad greens, herbs, and edible flowers today. It is cities that have made the market for these new products. Restaurants with their innovative chefs inspired the new farmers. Their farms are extensions of the city, willed by the city, and therein lies the reason they must be taken seriously.

The animal-rights movement also springs purely from city culture, which is one reason why conventional farmers oppose it so vehemently. Yet if the moderate mainstream of animal rightism prevails, that is, if society still wants to eat meat but insists that animals be treated more humanely and raised more naturally than is now the case in large confinement factories, the result will be good for farmers. ►

It will mean that more of them will be able to derive a decent living from husbandry rather than the condition that now prevails, where fewer and fewer megafarms raise more and more of the poultry and pork under conditions more and more dependent on drugs and chemicals. The meat will cost more money perhaps, but it will be worth more and the new consumer is obviously willing to pay. It is very likely that the huge animal factory complexes will eventually be phased out for no other reason than because, like landfills, nobody wants to live near them. Meanwhile, the state of Vermont has now passed a law whereby traditional family dairy farms will be paid so much per pound of milk produced just to stay in operation. Urban society wants the beauty of the open space that farms provide to remain on the landscape. Even 20 years ago, such an attitude would have seemed highly unlikely.

Do not undervalue your time trying to compete with products of lesser quality. It's a great temptation but it is slow suicide.

IF MY ARGUMENT for a future of more farms and farmers rested solely on the specialty farms, I would not advance it with so little fear and trepidation. But there is another kind of farming, another kind of guerrilla marketing that, in concert with what I have been describing, turns something that looks like only a fashionable trend of the moment into a more permanent situation. To describe this kind of farming, I need only to look out my window across the upper Sandusky, Ohio, neighborhood I have watched for 50 years and which has always told me the future of farming, if only I would pay attention. Next door to me, a couple and their two gradeschool children recently started milking eight cows on two acres, a spare-time business the universities tell their ag students is not profitable. Fortunately, my neighbor did not go to college and does not know he can't make money milking eight cows on two acres so he does it anyway. He wants to be a "real" farmer but fate has not put into his hands the kind of money it takes to own a "real" farm. So he operates a tile drainage business by day and milks his cows by night. He says he comes out in the black most of the time because he has no huge investment in farm land and machinery, and because he can take advantage of the propensity of megafarms to overproduce corn. For eight cows, he can buy feed cheaper than raise it. But as with all real farmers I know, he *really* milks cows because it is something the whole family can do together, something his children can earn wages and learn responsibility from. And at the bottom line, he just *likes* to do it.

If I swivel my head in a slightly different direction, I see my own barn through the trees, where Betsy and her new calf are presently penned. They represent, among other things, a successful experiment I thought I had pioneered in the production of low-calorie, low-cholesterol beef, only to find that my friend Oren Long, a Kansas rancher, had already perfected the method and was selling all the organic baby beef he could raise in supermarkets right alongside the conventional meat showcases, even at three times the price of conventional meat. His beef tests lower in calories and cholesterol than chicken and he says the taste is unbeatable, a claim I believe because my own beef, raised similarly, is absolutely luscious. Organic baby beef as Oren and I produce it is a calf slaughtered at about 700 pounds and seven months of age (conventional beef goes to market at 1,000 to 1,200 pounds and nearly two years old).

These calves grow mostly on mother's milk and good pasture, along with some grain the last two months, but in my experience, if the calf is getting a lot of rich milk from its mother, it won't eat much grain. No antibiotics. No drugs. No protein supplement. The calves do not get fat, the meat is not marbled as in prime beef and so does not have the heavy, tallowy aftertaste of prime beef.

Consumers have been so responsive to this kind of beef when made aware of it that large feedlots are now trying to reproduce it. It is my contention, and Oren's even more so, that this kind of organic beef (he calls his Lite Beef) *can't* be raised on a large scale. It demands too much personal attention, a steady supply of good pasture, and a mother cow that is a cross between dairy and beef breeds — he uses Jersey-Angus, I use Guernsey-Angus. Says Oren, who's in his sixties: "I'm getting too old to do this much work. There's opportunity here for young small farmers with a flair for salesmanship." The implications are enormous. If beef feeders followed this method, pasture, not corn, would become the chief food in beef production, negating the need for thousands of acres of soil-eroding corn and providing consumers with what they want: low-cholesterol, low-calorie red meat.

My neighbor across the road is a plant manager and farms 80 acres. Next to him in one direction is a mechanic who farms 80 acres. In the other direction, yet another part-timer, a carpenter, with 80 acres, who has just built a new barn. Across the road from him is a retired farmer whose son farms the land as a part-timer. They sell eggs from free-range hens, just as I do. His clientele say they enjoy driving out to his farm and so the cost of transporting the eggs is absorbed by customer satisfaction.

In another nearby neighborhood are five farms almost adjacent to each other that are owned or rented by small farmers very familiar to me. Two are relatively new operations started by men who formerly had other occupations. The wife of one of them has her own small business, which she conducts out of the house. A third farmer carries on a machinery-repair business along with his farming. A fourth recently rented additional land after a megafarmer got into financial difficulties and had to give the land contract back to the original owner. This renter also has another business. The fifth farmer has always farmed only his family's 200-acre homestead, dividing the income with his brother and sisters, and contrary to what the farm magazines assert about such arrangements, has done just fine financially, even in these "bad" years of the eighties. The pattern emerging before *my* eyes is that good, conservative, conventional farming is not in trouble at all, because small farmers either avoid indebtedness or have another source of income upon which to draw. Not only will these farms be around as long as their owners live (and then very likely pass on to offspring), they give every indication of being on the increase. My own brother, for example, using money from another small business to purchase land, has in these so-called hard times realized his dream to become a full-fledged farmer. My niece and her husband recently bought a small farm with their savings. They are in their twenties. Bidding against them were not big farmers, but other young couples like them. In the whole area west of my place, centering around the village of Kirby, there is a long-standing tradition of combining farming with another job or business — I could fill this page with the names of families doing it. Nor is it at all surprising; a study of how farms got started in the Midwest shows that among the pioneering families, invariably farmers depended on cash from another job or business to establish themselves on the land.

What is so intriguing about these small farms is that because many of them carry a relatively small debt load (interest payments are the highest cost per acre on most midwest farm operations that have expanded greatly in the last 20 years), they can actually raise food cheaper than the megafarms can. The Amish of course are the best example of this phenomenon (see my "Amish Economics," *WER* #50), but many other small farmers practice similar economies. If not horses, they use old tractors and machinery they repair themselves, have no hired labor to pay, and often share labor and machinery with each other.

In addition to these small commercial farmers, there are also those of us who come to be called "hobby farmers" although we resent the label — believe me, what I do is no hobby, it's a way of life. But my 30 acres produce only about $3,000 in food and wood per year, hardly a commercial enterprise. If I look at my immediate neighborhood of several thousand acres, I can count about twelve part-time commercial farmers, four "hobby" farmers, one full-time family dairy farm, and three very large cash grain operations. I also count four recent failures, all larger commercial enterprises. None of the small farms have been forced out by economics. I rest my case.

HOW CAN *YOU* SUCCEED in the new (or, for that matter, old) agriculture? I have emphasized the most important ingredient. Despite what any banker, economist, or farm journalist tells you, avoid debt or have another way to pay for it. Sustainable agriculture will not support high indebtedness and make a living at the same time. The Bible said it, if that impresses you. Shakespeare said it. Ruskin said it. The collective wisdom of mankind supports it. Don't ask me why. The answer takes too long. Just believe it.

As I said of Ed Fackler, farming demands the highest intelligence and the stubbornest spirit in the face of adversity. Only love of nature, love of nurturing, love of the land can bring the right kind of intelligence and stubbornness. But no love, intelligence or stubbornness is going to help unless you find a market *before* you start to produce. It is tempting the gods to open a sushi bar in Sleepy Eye, Minnesota.

Next, understand that the farm of the future may look more like a garden. May *be* a garden. Like aquaculture, certain kinds of gardening are moving from craft to industry. While thousands of acres of

No love, intelligence or stubbornness is going to help unless you find a market before *you start to produce. It is tempting the gods to open a sushi bar in Sleepy Eye, Minnesota.*

agribusinessland are converted to urban uses every year, within urban enclaves there are hundreds of acres of tillable soil that can be and are being used for small-scale food production. This is why I say that as population increases, farm size decreases and farm numbers go up. Ask the Chinese and Japanese. In Japan an acre of farmland can cost $250,000. You don't buy many megafarms at that price.

Add to those absolutely necessary factors the following tips from Mark Musick and you could be well on your way to joining the renaissance in urban, if not rural, farming:

1. Develop diversity — have something to sell every season.

2. Do not undervalue your time trying to compete with products of lesser quality. It's a great temptation but it is slow suicide.

3. Incorporate a high level of service in your product — a committed personal devotion to quality and communication with your customers.

4. Minimize energy inputs. Follow programs that use less tillage, less irrigation water. Plant drought- and disease-resistant crops when possible. Export sunlight rather than fertility by concentrating on products that deplete the soil less or that leave most of the plant in the field.

5. Emphasize perennial rather than annual crops. "Look at a specialty annual as a way to get your foot in the door and provide cash flow while high-value, perennial crops become established," says Musick. *"You don't want to be left plucking pansies when the culture shifts."*

6. Add value to your food products by further processing: drying, freezing, canning, baking, juicing, curing, etc. Processing also provides one way to store crops for year-round sales, and storage, even of unprocessed foods, is a good way to add value by spreading availability over a longer season.

8. Learn how to package your products both for attractiveness and for price. "If I have learned anything in this business," says Musick, "it is that packaging is everything." Faced with the problem of how to sell gourmet Spanish Roja garlic at $4 a pound in competition with regular California garlic at 98¢, he put the Roja in small mesh bags, four ounces to the bag, and sold them for 98¢. It worked.

8. Market directly to the consumer as much as possible. Work up a list of regular customers you can serve continuously. Musick calls this "subscription marketing."

A last word of caution, from a lifetime of farming. If you chafe under the constraints of a somewhat simple, stable, slow-lane life, farming is probably not for you, not even urban farming. Money dare not be your main goal, nor the expensive toys of life that money can provide. The biological nature of your work simply precludes big profits in all but the most exceptional cases. The examples of food production I use in this article have high gross incomes, but that does not mean that such businesses are *netting* a lot of money or even want to. Or that much more humble incomes and operations can't be comfortable ways of living for people who prize simplicity, who shun the fast lane. When Gary Hirshberg said Stonyfield had cracked the $3 million mark, he added a little wistfully: "Sometimes I wonder if we wouldn't have been just as happy staying with our own herd of cows and the yogurt we could make from their milk." I can't tell you how many times I have heard that kind of remark from large-scale businesspeople. Small is not always beautiful, but greed is always ugly. ■

Family Farming

By most accounts the family farm is all but finished. The food system of the future will be dominated by relatively few superfarms owned by multinational conglomerates. This is clearly the trend, but why? To the acolytes of agribusiness the answer is "progress," i.e. that inevitable march toward large-scale, computerized efficiency. In ***Family Farming****, Marty Strange argues convincingly to the contrary. According to Strange the decline of family-owned and -operated farms does not lie in their inefficiency, but in the public policies governing tax codes, land ownership, farm benefit and subsidy programs, and research priorities at land-grant universities. Peak efficiency in agriculture occurs at a relatively small scale: between $45,000 and $133,000 of gross sales. The very large farms, that have diligently farmed the tax code, are less resilient, less flexible, and operate with far less margin for error. They have also contributed substantially to the decline of rural environments and communities. The largest part of* ***Family Farming*** *is a detailed analysis of the economic and policy factors behind the evolution of U.S. agriculture.*

Strange proposes to reconcile farm policy with traditional rural values. This requires public policies that reward good farming, not land speculation and carelessness. His suggestions include: an end to subsidies for capital investment; better production controls; a national land policy; regulation of input industries and commodity markets; and careful guidelines for agricultural research and technology. Sensible stuff.

Family Farming *is the best analysis I've seen of American agriculture. It is clear-headed, informative, practical, and well-written. Strange has taken much of the mystery out of a complex subject. This is an honest book that acknowledges the mistakes and shortcomings of family farms while arguing for their preservation. For those interested in sustainable agriculture, this is a plausible view of how we get from here to there.*

—David Orr

Family Farming
Marty Strange, 1988
$18.95
($20.95 postpaid) from:
University of Nebraska Press
901 N. 17th Street
318 Nebraska Hall
Lincoln, NE 68588-0520
402/472-3584
or Whole Earth Access

●

No tradition is more glorious in its acclamation of egalitarian values than the agrarian tradition, yet none tolerates and even admires the accumulation of wealth more. No tradition proclaims more loudly the value of neighborhood and community, yet few have tolerated and rewarded predatory behavior more. Most disappointingly, no system of agriculture brags more that it respects the soil, yet none has respected it less. We've done more damage to the topsoil of the Midwest in a hundred years of family farming than the communal cultures of the Native Americans did in a millenium, or the ancient civilizations of the Middle East did in their span. We have been richly endowed and we have squandered it.

But the fact that family farming has fostered some disappointing behavior and cloaked it in self-righteousness is no excuse to abandon it. So what if the performance falls short of expectations? The remedy is not to forsake the expectations, but to make the performance equal to them. Farmers should be held accountable for the way they treat the soil, and their predatory behavior should be restrained. But to reach these conclusions requires that we love family farming enough to resist its dark side. This book is for people who do, or would like to.

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Farm sales size	*Debt as % of Assets*
Under $5,000	11.0%
$5,000–$10,000	12.6
$10,000–$20,000	14.9
$20,000–$40,000	16.7
$40,000–$100,000	21.0
$100,000–$250,000	23.3
$250,000–$500,000	26.7
$500,000 plus	38.1

Source: USDA 1987.

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Public policy should make ownership the just reward of good land use, and good land use the obligation of owners.

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In essence, mine is nothing more than a call to reconcile farm policy with its historic rural values. There is nothing wrong with the values commonly associated with the traditional family farm — self-reliance, frugality, ingenuity, stewardship, humility, family, neighborhood, and community. Just because they are agrarian does not make them less important to contemporary society.

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Without limits on the accumulation of property, on the right to produce, and on inappropriate uses of technology, setting commodity prices at levels that assure profits will simply feed the process of industrializing American agriculture.

●

A Faustian bargain has been made between the use of the technology and the impersonal market. The bargain is this: In return for the splendid increase in production made possible by this technology, the producer must accept less money for each unit sold, and share the rewards of increased output with those who produce the technologies.

●

Agriculture can't live up to a public standard of moral purity that is higher than that expected of the rest of our society. If farmers are expected to steward natural resources even when doing so is not in their immediate self-interest, the rest of us must be willing to sacrifice the immediate benefits of cheap food for the long-range benefits of a sustainable food system. If we expect farmers to conserve resources without providing sufficient economic reward for doing so, we only shift an impossible burden onto their shoulders. Farmers should not have the right to exploit land, but cannot resist the market forces that encourage them to do so without the support of the rest of us. The market alone should not determine the use of resources, and it alone should not determine the economic fate of farmers, either. Public funds must be committed to support conservation.

Even good farm policy cannot resist larger national policies that work against it. Agriculture is now integrated into the rest of the economy. Capital-intensive, world-market oriented, and dependent on manufactured inputs, agriculture is vulnerable to changes in major market conditions, and therefore to major macroeconomic changes in this country and in the world. That's why the notion that agriculture can compete in a free market is so impractical, and why people who think that the government ought to get out of agriculture are living in an ideological time capsule.

LEGALIZING STREET FOODS IN THE THIRD WORLD

The Right to Eat on the Street

BY IRENE TINKER

A basket full of savories, curries and sweet rices offered to passengers at a bus stop in Manila, Philippines.

This culinary investigation began as a query into how development in the third world differed in its impact on women. Irene Tinker was a Fulbright scholar and professor of comparative development at American University, and is now director of Equity Policy Center in Chevy Chase, Maryland.
—Kevin Kelly

STREET FOODS SERVE IN PLACE OF fast-food chains in most countries of the Third World. Like those chains, street foods provide quick, inexpensive meals for working women and men with little time to prepare their own food. Yet universally, street foods are illegal or extralegal. We would not stand for laws that prohibited McDonald's or Wendy's. How is it possible that the major source of prepared meals in Third World countries is technically prohibited?

National leaders in these countries see the congestion of their urban streets as an illustration of their underdevelopment. Schooled in the West, they think of street foods as snacks, a minor element in national accounts. Thus they think in terms of cleaning up their streets rather than in terms of the importance of street foods as income and food, especially for the urban poor.

In American cities there are also debates over street vendors. Flowers, food, imported clothes, baskets, jewelry are all sold in downtown Washington. Metropolitan papers talk about *people-grazing* on downtown streets where gourmet quiche and German sausage are found next to pizza, hot pretzels, and ice cream bars. But the bulk of fast meals are now served by specialized food chains which dominate a market once ruled by drug-store counters, diners, and automats.

Street-food sellers have always specialized. In Senegal, women sit on the ground outside the marketplace to sell *monie,* porridge made from millet, from large calabashes. In Peru, fried fish is a cheap and satisfying meal; women fry it before the customer so it is crisp and fresh. Men push carts to major intersections and sell kebabs of different varieties in different countries: in Indonesia the small chunks of meat are served with peppery peanut sauce and called *sate;* meat chunks are larger in Senegal but are of ground meat in Bangladesh. Nuts are sold from baskets women carry on their heads. Fried bean curd is a favorite lunch food for schoolchildren in Indonesia; two products made from dried beans, *foul* and *tamia*, are preferred in Egypt. Soup meals are found in many countries, but their ingredients vary: in Thailand and the Philippines noodles with bits of fish or vegetables predominate; in Nigeria the base is farina.

These foods are sold on the street because renting space in buildings is expensive, and this cost would price the food sold in these restaurants out of the range of most urban dwellers. Many sellers and customers of street foods live in squatter settlements; so-called low-cost housing built in these countries is filled with middle-class bureaucrats. Similarly, when McDonald's migrates to Djakarta or Bangkok, it becomes middle-class food. The food of the poor is street food.

To document the importance of street foods, the Equity Policy Center, of which I am director, is engaged in a global study of who makes, sells, and eats ready-to-eat foods. Our findings indicate that as much as 20 percent of the total food budget of urban dwellers is spent on street foods. Persons of all income levels eat street foods, but poorer people spend more on them than the better-off. Street foods are the only source of school lunches in many countries; in Nigeria, 90 percent of the children eat at least one meal daily on the street. Pedicab drivers, blue-collar workers, low-level clerks, and vendors of various products other than street foods are major customers. Clearly, street foods are an essential part of the food system in these countries.

Employment for the urban poor

The selling of street foods provides an important source of income for the urban poor. In fact, our studies indicate that the average income of street vendors was equal to that earned by skilled workers. Of course there was a range of income across the types of foods, but it appears that selling food is an important and profitable occupation for many people.

Women, in particular, find the flexibility of street-food vending much more compatible with their family responsibilities than work as domestics or in factories. Worldwide, one out of every three households is headed by a woman. Thus women need to work and yet care for their children. Street food is one way they can do this. In Senegal, 59 percent of the women vendors were the major income-earners in their families; 28 percent of the women sellers in Peru were heads of households. In Bangladesh, all the women sellers were destitute widows except for one with an invalid husband, they had been set up in trade by their relatives so they could survive.

The scale of this activity has not previously been recognized. Our research shows that between 6 and 26 percent of the total urban labor force, in those cities studied, was involved in some element of making or selling street foods, or in making utensils used in their preparation or sale. In countries with growing populations and hence growing unemployment, the ability of this sector to absorb workers cannot be overlooked. In one Indonesian town, Bogor, with a population of a quarter of a million, we found that one of every fourteen workers earned income from the street-food trade! This city may have reached saturation point, for the income of the individual vendor was falling.

While both women and men engage in street-food selling, there is great variation among the countries as to the specific roles each plays. In only one country studied, Senegal — where women constitute some 53 percent of all vendors — are both the foods sold and the place of sale completely sex-segregated. In other countries, what women and men sell may overlap, but there remain some specialty foods identified with one sex. In Indonesia, no women sold noodle-soup meals; in Egypt no women sold *kushary* (a mixture of rice, beans, and macaroni), perhaps because in that country some foods can be licensed to sell on the street, and this food is illegal. In Thailand, women, both Thai and Chinese, dominate the sector, selling 80 percent of the street foods. In the Phillipines, women dominate the activity, selling everything that men sell except ice cream, which is sold on concession. Women alone controlled 79 percent of the enterprises and appeared to be the major decision-makers in the 7 percent that were couple-owned.

Most street-food enterprises involve one or two people. Often only one person sells, but the spouse or another family member assists by buying ingredients, pounding the grain or beans, washing utensils, or carrying the foods to the place of sale. In Egypt, where only 17 percent of the enterprises had women vendors, 14 percent of the male spouses and 17 percent of the female spouses worked in the enterprise. In Bangladesh, where women seldom sold on the streets, they assisted in food preparation either at home or at the place of sale in 37 percent of the enterprises.

Eating street foods saves time

People eat street foods for the same reason Americans eat fast foods: they are cheap, convenient, and save time. Economies of scale plus the high cost of cooking fuel often make street foods cheaper than food prepared at home. Further, traditional foods often take hours to cook.

Time-budget studies have shown that rural women, who work ten to twelve hours a day in

Outdoor kebab stand on the streets of Kandahar, Afghanistan.

contrast to the six or eight hours worked by the men in their families, spend more time on food preparation than on any other single activity. Much of their work involves processing grains, tubers, or legumes so that they may be cooked. Corn must be dehulled and ground, cassava must be shredded and dried; soy beans are usually fermented to save hours of boiling. Once processed, many traditional foods still require long hours of cooking. *Monie* must simmer for several hours before it is edible as a hot breakfast food; *couscous* must steam for a considerable time.

While some of these foods can be purchased in fancy downtown shops in an instant form similar to Uncle Ben's rice, the cost is prohibitive for most street-food customers. Their choice is between hours of preparation and ready-to-eat food at almost the same price. For working mothers, there is no question which they would choose. A similar choice is reflected in the fact that some 40 percent of all meals in the U.S. are eaten out of the home, usually at fast-food restaurants.

Importance of legalizing street foods

Street foods are not only a major occupation in developing countries, they provide essential food service to millions of productive urban workers. Contrary to assumptions, many sellers pay daily market fees. In the Philippines, as reported in our studies, sidewalk vendors paid dues to their own self-regulating organization to avoid clashes with the police. Indeed, fear that the police or military would break up their carts or shacks and destroy their merchandise was the greatest problem for street sellers. Bribes and protection money were higher than license fees might have been.

Even in those countries that license vendors, such as Egypt or Thailand, the procedures are time-consuming and many vendors do not bother to apply. Further, choice spaces are usually off-limits so that bribes must still be offered for positions which the vendors consider theirs; such places are often "sold."

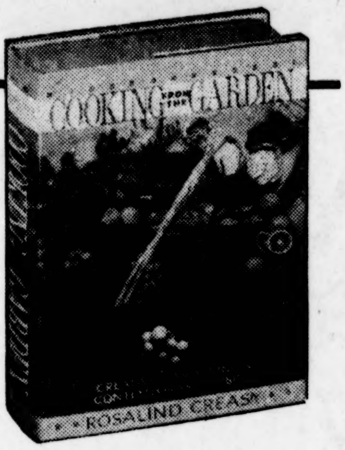
Licensing is important in order to enforce health regulations. Street foods are generally safe, our studies show. Food recently cooked and covered from dust will seldom cause health problems. The major source of contamination is from dirty utensils and hands; yet few street-food establishments have easy access to clean water for washing. Cities could legitimize street-food sellers, charge a small fee, and install clean water at frequent intervals. Sellers should be allowed to stay near their customers, but they could be grouped in sidestreets or open spaces.

Most street-food sellers are not located in congested downtown areas, however. Over three-quarters of the enterprises sell foods in residential neighborhoods, just as most McDonald's are located in the suburbs. This fact reinforces the importance of health control and water provision and minimizes the crowding problem.

Recognizing the importance of street foods to the feeding of the poorer sections of the economy has implications for food policy. Subsidies now favor imported food. We found *monie* vendors diluting their porridge with rice because the price subsidies made this imported grain cheaper than locally produced millet. Yet millet will grow on poor soils and will endure with little rain. Government policies favoring rice are clearly counterproductive.

THERE ARE MANY other avenues open for helping to improve either the income or the food sold by street-food traders. Organizing vendors will give them protection against the government. Groups of vendors could purchase health insurance or provide child care. Credit and water could be supplied through these groups. The cost of both raw materials and already prepared food could be reduced through group activities. But before any improvement can be made to the street-food trade, it must become a legitimate activity. Legalizing the street-food trade in Third World countries must be a priority for anyone concerned with hunger in the world. ■

Cooking From the Garden



Cooking From the Garden
Rosalind Creasy
1988; 547 pp.
$35
($38 postpaid) from:
Sierra Club Store
730 Polk Street
San Francisco, CA 94109
415/923-5500
or Whole Earth Access

I'm not in the habit of reading or reviewing cookbooks, so the notion of turning pages and salivating is a bit new, but this book did that for me. It is actually several books rolled into one. The price and full-page color photography make it suitable for the food-as-art coffee table — along with all the other pretty-food cuisine books that make me hunger for a Sloppy Joe. (Pretty or not, dinky portions scare me.) The information on gardening techniques, and what varieties gardeners around America are growing, make this a fascinating gardening book. And the recipes, which come from all over the world and which use vegetables but are by no means only vegetarian — well, that's where the drooling comes in.

This enormous book is really a state-of-the-art survey of America's gardens and kitchens. The link between the two is not new but very old, and by artfully re-establishing it, Rosalind Creasy is providing that awareness so essential before the public can demand and get food that is not only tastier, but safer to eat.

The book is filled with profiles of people from both ends of the food spectrum — market gardeners, specialty growers, seed dealers and chefs — and Creasy is always asking not just "what are you growing or using?", but "how do you cook it?". The recipes come pouring in from everywhere, because every gardener is a cook and, by implication, every cook should be a gardener, or at least care more about where the ingredients come from. Creasy's first book, ***The Complete Book of Edible Landscaping*** *(CQ #34, p. 57), put vegetables outside the kitchen door, and even into the front yard; this book puts them in the soil, the kitchen, and the imagination.*

—Richard Nilsen

►

Potage is the French word for soup, and in a gardening context a *potager* is a garden containing whatever is necessary for soup at any time throughout the year. Traditionally, the *potager* garden is planned in little three- or four-foot-square or rectangular plots, which rotate with the seasons, along with a nursery area for young seedlings. . . .

As Georgeanne put it, "This garden fits into your life; it doesn't dominate it. Once the garden area is prepared, an average of twenty minutes a day is required to keep it up. For instance, a typical day might include harvesting a handful of snap beans and a few herbs, cleaning up the spent chard plants in one of the small beds, and seeding that bed with beans."

Hurricane Kitchen

The very designation "institutional food" conjures horrific visions and maggot-gagging dread. All in cruddy browns, tepid greys, and covered with nutritionally balanced slimes, set before us blindfolded so we can't tell whether we are at school, camp, in the hospital, or in a federal penitentiary. Yuk!

With this excellent book, people who are responsible for the conduct of institutions and/or the care and feeding of groups can tell that hairnetted sourpuss who runs the kitchen to stuff its Number Ten tin cans where the sun don't shine and leave aboard the scrofulous camel it rode in on. Rick Perry is famous for his wonderful food at the Hurricane Island Outward Bound School, in Maine, where a handful of cheerful cooks serve a couple thousand meals a week to ravenous wilderness experiencers. He does this using real whole fresh foods, including some luxurious ones, on a budget smaller than that for other institutional kitchens with similar responsibilities. The most cynical detractors against "health foods," seed- and bush-haters, come away from his table thrilled and amazed, their attitudes altered forever.

The first section of the book discusses a bit of general nutritional philosophy without posturing, piety, or rancor, then goes on to outline principles of menu planning, food handling, kitchen gear, and how to set up a grain room. The rest of the book is devoted to recipes that knock your socks off.

—George Putz

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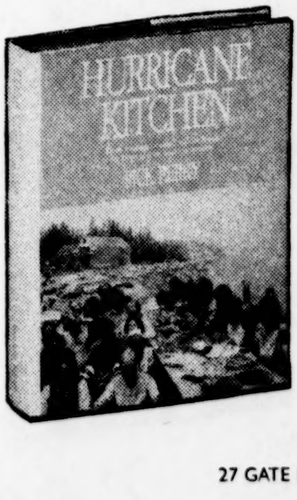
Minestrone for 30

Start with a vegetable/miso broth, add crushed or whole tomatoes and cooked beans (such as chickpeas or white beans). Season generously with lots of garlic, parsley, oregano, basil, and freshly ground black pepper. Adding pasta is a traditional and nutritious option. Serve with additional parmesan cheese.

10 quarts vegetable broth (or use Basic Miso Soup)
5 quarts canned tomatoes or leftover spaghetti sauce
1 quart cooked white beans or chickpeas
2 quarts cooked shells or other pasta
4 cloves garlic
1 cup chopped fresh parsley
Season with basil, oregano, black pepper, tamari
Serve with parmesan cheese



Hurricane Kitchen
Rick Perry
1988; 172 pp.
$21.95
($24.45 postpaid) from:
Lance Tapley, Publisher
P. O. Box 2439
Augusta, ME 04330
207/622-1179
or Whole Earth Access

Mail Order Foods

FIRST CLASS MAIL
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arth Review
5 Road
o, CA 94965
USA 25
Jack London

Who sells organic apples?

BY ANN NUGENT

IF YOU'RE HAVING TROUBLE finding organically grown apples, cheese, bread, chicken, jam, or orange juice, or if getting to the markets that sell organic food is too inconvenient for you, try ordering organic food by mail.

Over a dozen mail-order food companies offer organically grown food. (You can write Americans For Safe Foods for a complete list: 1501 16th Street NW, Washington, DC 20036; 202/332-9110.)

These mail-order companies vary widely, however. A few are distributors and sell only wholesale. Some carry nearly a complete line of organic food, while others specialize only in one item — like dried herbs. Only two carry meat and poultry, and only one carries a large variety of fresh produce. A few carry breads, muffins, cakes and pies. And some are more expensive than others. One company just began to stock organic cheese, yogurt, and jam with organic fruit sweeteners. Several carry food that's "certified organic," and they're especially careful in defining "organic," while other companies don't bother to define the term at all.

The following selected, mail-order, natural-food companies are the ones that feature organic food. They all carry such stock items as beans and grains, and all accept small orders (though groups of people often buy in bulk to take advantage of the cheaper rates). Some outlets have large inventories; the smaller ones often feature specialty items. The ones that carry only "certified organic" foods are listed first.

USEFUL TERMS

Certified organic
Standards vary in different states. In some cases the state legislature has determined the standards; in other cases, private organizations have drawn them up. Generally the term means that crops are grown without synthetic pesticides, herbicides or fertilizers on soil that has been free of chemical pollutants for one to three years. Moreover, only certain natural materials may be applied to the soil, like composted or well-rotted manure (raw manure is forbidden).

Organic
A doubtful term. Some states, like Washington, forbid anyone using this term unless the food or farm is certified. Ask, though; it may mean any of the terms used below.

Chemical-free, or grown without pesticides, herbicides, or chemical fertilizers
These terms most likely mean that the farm grows its crops in soil that hasn't been free of chemical residues long enough to be certified organic. Farms that grow crops under these conditions are usually in the transition stage before they can qualify as certified organic.

Pesticide-free
Crops grown without the use of pesticides, though other chemicals may be used.

Spray-free
An ambiguous term. It might mean the farmer isn't using pesticide sprays on the produce, but may use pesticides in the fields, say, during the winter.

IPM (Integrated Pest Management)
Foods marked with this label indicate that the farmer works within the biological environment; rather than indiscriminately eradicating pests, he monitors them, curbing them only if they get out of hand. He encourages natural predators and rotates his crops as a way of keeping pests under control. He applies pesticides sparingly and only when and where they will do the least damage.

AS ONE distributor put it: foods bought under these labels are usually all right as long as the labels are clearly defined and mean what they say. Any of these methods of raising crops is better than foods raised without any pesticide restrictions whatsoever. Farmers who are in the transition stage as they switch over to organic farming — a process that takes years — should be encouraged. —Ann Nugent

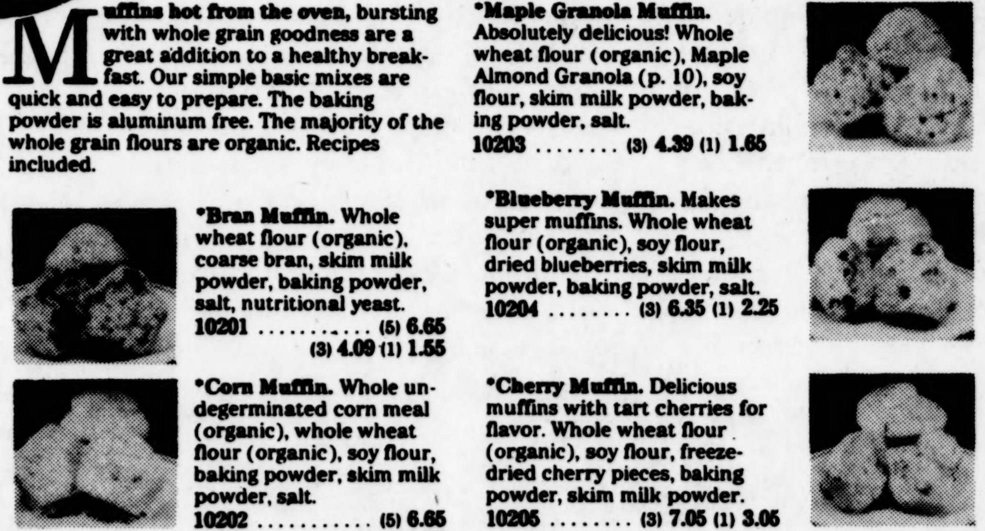
Living Farms, *Box 50, Tracy, Minnesota 56175 (507/629-4431),* has a small inventory of grains, beans, and seeds. It sells only "certified organic." It does the annual certification itself with a staff that regularly monitors the farms. It claims its standards meet or exceed certification requirements set by any association or government agency in the United States.

COMMODITY	PRICE
Rye------------------------$	.19/lb.
Standard Soybeans----------$	.28/lb.
Hard Red Spring Wheat------$	.23/lb.
Hard Red Winter Wheat------$	.23/lb.
Soft White Winter Wheat----$	.23/lb.
Black Mustard Seed---------$	2.20/lb.

Garden Spot Distributors, *438 White Oak Road, New Holland, Pennsylvania 17577 (toll-free: 800/292-9631 in PA; 800/445-5100 in the Northeast; or 717/354-4936).* A major certified-organic, wholesale food distributor, but will also accept individual mail orders. This company holds to strict standards, set, in this case, by the Pennsylvania chapter of the National Organic Crop Improvement Association. Its catalogue carefully explains its standards for certified organic produce. It also carries food labeled "chemical-free." Garden Spot's supplier is primarily Shiloh Farms in Arkansas, but it also carries other major brands — Arrowhead Mills, for instance — that adhere to their standards. Its extensive inventory includes 16 varieties of bread (about $1.75 for a 1½-pound loaf), hamburger buns, pita bread. But it doesn't carry fresh produce.

12/6.4oz	VEGETARIAN CHILI	K	21.86	1.82
12/12 oz	BR BASMATI RICE	K	22.36	1.86
12/12 oz	COUSCOUS GRAIN	K	18.20	1.51
12/ 2 oz	MISO VEG. NOODLE SOUP			
12/ 2 oz	TOMATO VEG. NOODLE SOUP		15.58	1.29

Walnut Acres, *Penns Creek, Pennsylvania 17862 (717/837-0601).* The granddaddy of organic food mail-order companies. Abides by its own strict standards of organic foods similar to other certification codes. You might say it set the standards which all others have followed. Carries other brands as well as its own, and other foods, too, that are not organic. Has an extensive truck-delivery service.



Muffins hot from the oven, bursting with whole grain goodness are a great addition to a healthy breakfast. Our simple basic mixes are quick and easy to prepare. The baking powder is aluminum free. The majority of the whole grain flours are organic. Recipes included.

***Bran Muffin.** Whole wheat flour (organic), coarse bran, skim milk powder, baking powder, salt, nutritional yeast.
10201 .... (5) 6.65
(3) 4.09 (1) 1.55

***Corn Muffin.** Whole undegerminated corn meal (organic), whole wheat flour (organic), soy flour, baking powder, skim milk powder, salt.
10202 .... (5) 6.65
(3) 4.09 (1) 1.55

***Maple Granola Muffin.** Absolutely delicious! Whole wheat flour (organic), Maple Almond Granola (p. 10), soy flour, skim milk powder, baking powder, salt.
10203 .... (3) 4.39 (1) 1.65

***Blueberry Muffin.** Makes super muffins. Whole wheat flour (organic), soy flour, dried blueberries, skim milk powder, baking powder, salt.
10204 .... (3) 6.35 (1) 2.25

***Cherry Muffin.** Delicious muffins with tart cherries for flavor. Whole wheat flour (organic), soy flour, freeze-dried cherry pieces, baking powder, skim milk powder.
10205 .... (3) 7.05 (1) 3.05

Diamond K Enterprises, *RR1, Saint Charles, Minnesota 55972 (507/932-4308).* Has a small inventory; most items are "top-quality organic," which, according to the company, means crops grown "without chemical fertilizers, herbicides or insecticides." Products on the list that are not organically grown are marked with an asterisk.

NUTS AND FRUITS	8 oz.	
English Walnuts-halves	2.11	4.13
Raw Almonds	2.82	5.41
Pecans	2.84	5.48
Figs		3.73
Raisins (organic)		1.83
Dates (organic, Bahri)		3.11

Jaffe Brothers, *P. O. Box 636, Valley Center, California 92082 (619/749-1133).* Seems to be the only large mail-order organic food company on the West Coast. It doesn't claim its organic food is certified. One of the few companies that sells organic jam and apple butter. It features a wide selection of organic, unsulphured, and unfumigated dates and dried fruits, as well as nuts and olives. And it even carries organic dog food.

ALL-NATURAL DOG FOOD

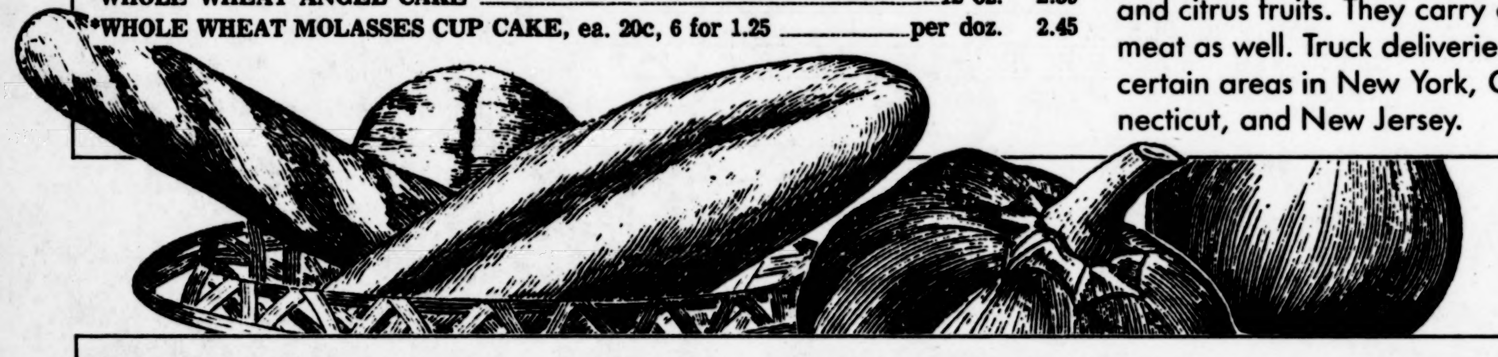
No preservatives. This is a complete balanced food that meets or exceeds the Natural Research Council requirements *(except salt)* for all dogs. This food is the small kibbled variety. 20 lbs.......$10.50

Deer Valley Farms, *R. D. 1, Guilford, New York 13780 (607/764-8556).* It features foods marked by the New York State "Certified Organic" emblem, but it also carries items that are not organic, which it calls "natural." It claims the other brands of organic foods that it carries meets its standards. The company's extensive inventory includes bakery goods that are made with certified, organically grown, whole-grain breads and eggs. It bakes fifteen varieties of bread ($1.19 for a 1-lb.,2-oz. loaf), and goodies like whole-wheat angel cake, danish buns, apple strudel, pies. One of the few companies that carries organic fresh fruit. Unclear about whether they're certified, for it only says that the apples are "biologically grown, no toxic sprays used." Limited to apples (several varieties) and citrus fruits. They carry organic meat as well. Truck deliveries to certain areas in New York, Connecticut, and New Jersey.

CAKES, whole grain

Cakes vary in weight, some are priced by the ounce

*NUT CAKE—contains no flour, ONLY eggs, nuts, sunflower seeds, honey, baking powder, cream of tartar, approx. 12 oz.		2.39
*WHOLE WHEAT FRUIT CAKE, only during Nov. & Dec. sizes vary, 1 to 3 lb.	per lb.	2.95
*WHOLE WHEAT POUND CAKE, made with butter, approx. 14 oz.		2.59
*WHOLE WHEAT SPONGE CAKE, approx. 12 oz.		2.39
*WHOLE WHEAT ANGEL CAKE	12 oz.	2.39
*WHOLE WHEAT MOLASSES CUP CAKE, ea. 20c, 6 for 1.25	per doz.	2.45



Organic Foods Express, *11003 Emack Road, Beltsville, Maryland 20705 (301/937-8608),* is the only supplier that carries a large selection of fresh fruits and vegetables, and its monthly fliers show fluctuating costs and available items. (In April 1988, it began selling other organic foods — bread, cheese, yogurt, eggs, fruit juices, coffee, baby foods, and sweeteners, as well as grains and cereals.) Available fresh produce in early April included carrots ($ .69/lb.), lettuces ($1.29 each), broccoli ($1.99/lb.). navel oranges ($ .99/lb.), apples ($1.45/lb.). Shipping (UPS) costs extra. This company distinguishes in its flier between "organic," "natural," and "unsprayed," but doesn't go beyond that. The owner, though, claims that his distributor belongs to several organic food associations. You should insist that Express send only best-quality produce; one week in early April the lettuce received by a customer was excellent, but the following week it was poor. This company guarantees customer satisfaction. It sends fresh produce only during the cool- or cold-weather months.

Juices		
Apple-Boysenberry (O).	Reg. $3.69 qt.-	Now $2.99
CA Fruit Fantasy (O)	Reg. $2.99 qt.-	Now $2.59
Muscat Grape (O)..........	Reg. $2.99 qt.-	Now $2.59
Nectarine Nectar (O)	Reg. $2.99 qt.-	Now $2.59
Peach Paradise (O).......	Reg. $2.99 qt.-	Now $2.59
Pear Perfection (O)	Reg. $2.99 qt.-	Now $2.59
Plum Pleasure (O).........	Reg. $2.99 qt.-	Now $2.59

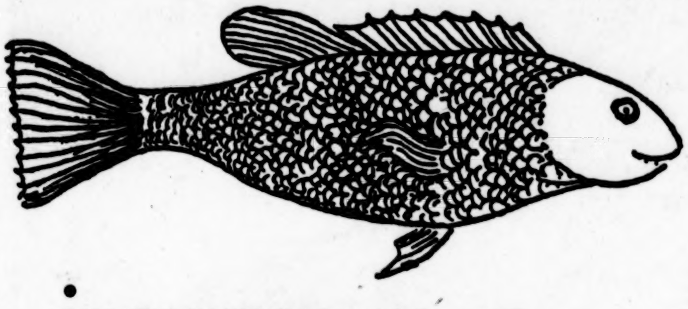
THE LARGE, NATURAL-FOOD, MAIL-ORDER COMPANIES — Genesee Natural Foods in Pennsylvania, Country Life Natural Foods in Michigan, and The Mountain Ark Trader in Arkansas — don't feature organic foods. Their organic-food items are difficult to find in their extensive lists, and the companies don't say how they define "organic."

If you're interested in growing some of your own vegetables, start right and buy untreated, pesticide-free seeds. Butterbrooke Farm Seed Co-op's mail-order service, 78 Barry Road, Oxford, Connecticut 06483, supplies a wide range of "chemically untreated, pure-line seeds." Owners Tom and Judy Butterworth belong to the Natural Organic Food Association and the Organic Food Network. ■

The Art of American Indian Cooking

Though not quite authentic (where you gonna get partridge eggs?) these recipes will give you some idea of what real Native American food is like. A lot of it will be familiar because many of our "traditional" recipes and foods had their start with the peoples that were here first. The book is divided into regions, and many of the recipes have a brief history of where they came from, what the original ingredients were, and how they were prepared. We have it easy; all of the recipes are adapted to modern whiteman kitchens, and we don't have to shoot buffalo.

—J. Baldwin



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SALMON CAKES (Makes 6-8 Servings)

1 (1 lb.) can salmon, flaked (include liquid)
4 juniper berries, crushed
⅓ cup corn meal
2 eggs, lightly beaten
⅔ cup milk

Mix all ingredients together, spoon into a well-greased muffin tin, and bake in a moderate oven, 350° F., for 30 minutes. Serve hot or cold.

The Art of American Indian Cooking
Yeffe Kimball
and Jean Anderson
1965, 1988; 215 pp.
$8.95
($10.95 postpaid) from:
Nick Lyons Books
31 W. 21st Street
New York, NY 10010
212/620-9580
or Whole Earth Access

THE ART OF
AMERICAN
INDIAN
COOKING
YEFFE KIMBALL
&
JEAN ANDERSON

•

HOMINY SOUP (Makes 8-10 Servings)

¼ pound salt pork, sliced about ¼" thick
1 medium yellow onion, peeled and sliced thin
2 (1 lb. 13 oz.) cans hominy, drained
1 quart buttermilk
½ teaspoon salt
¼ teaspoon fresh ground pepper

1. Render the salt pork thoroughly in a large, heavy kettle. Drain off drippings.
2. Add onion to the kettle, and sauté slowly until golden and transparent.
3. Mix in the hominy, and heat gently, stirring, for about 5 minutes.
4. Add buttermilk, salt, and pepper, and heat very slowly (do not allow to simmer) for about 5 minutes. This soup should be served warm, not hot.

Dutch Oven Cooking

Ask any river-runner: dutch-oven cooking is yummy. I've seen unexpected fare such as devilsfood cake appear from a dutch oven operating 200 miles from civilization — they'll bake most anything. Well, yes, they're a bit heavy for backpacking, being cast iron (though the book shows how to make a lightweight one from aluminum pie tins). On the other hand, they do well for feeding a group — all at once. This little book briefly introduces you to the beast, and then gets to the real business, the recipes. Ah, yes. Oh my.

—J. Baldwin

Dutch Oven Cooking
John G. Ragsdale
1988; 70 pp.
$4.95
($6.95 postpaid) from:
Gulf Publishing Co.
Book Division
P. O. Box 2608
Houston, TX 77001
713/520-4444

DUTCH OVEN
COOKING

or Whole Earth Access

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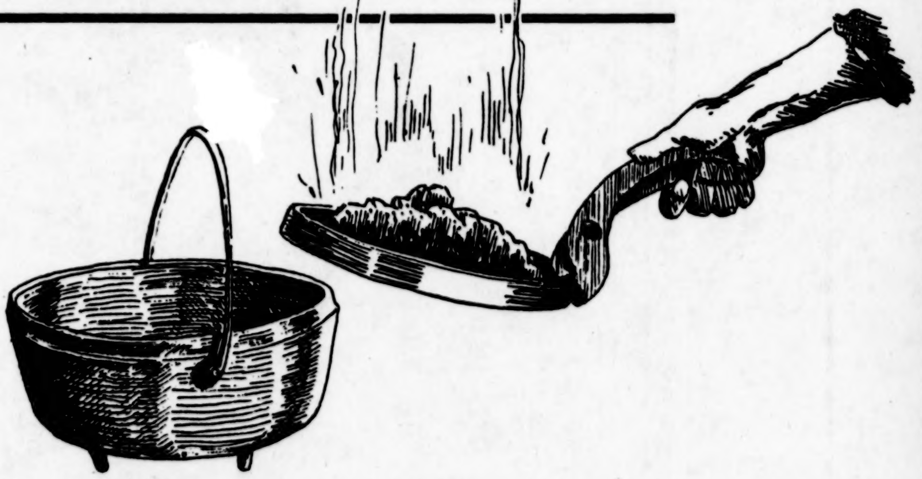
The size of ovens may range from 8 inches to about 16 inches in diameter, but the most common size is 12 inches in diameter and is the size I would suggest for your purchase. This size is usually ample for use in serving six to eight persons, is a satisfactory size for storing and transporting on your outings, and is most readily available. . . .

The best oven for your use will have three legs, which will serve to keep the oven above the ground a sufficient height to allow placing coals under the bottom of the oven. Do not make the mistake of choosing a flat bottom, indoor type of oven that works well in your kitchen but is not the best type for your outdoor cooking. These legs are essential for the best use of the oven, and you should use care not to break them in handling the oven. . . .



Also, the best ovens have a vertical lip around the edge of the lid, and this lip is most important in retaining coals on the top of your oven. The rounded, self-basting top works well in your kitchen at home but is not the type you need on your camping trip. This lip can also serve as a place to grasp to remove the lid during cooking.

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Miners' Muffins

1 cup sourdough starter
2 cups flour
½ cup milk
½ cup sugar
1 egg
2 tbsp cooking oil
1 tsp baking powder
½ tsp salt

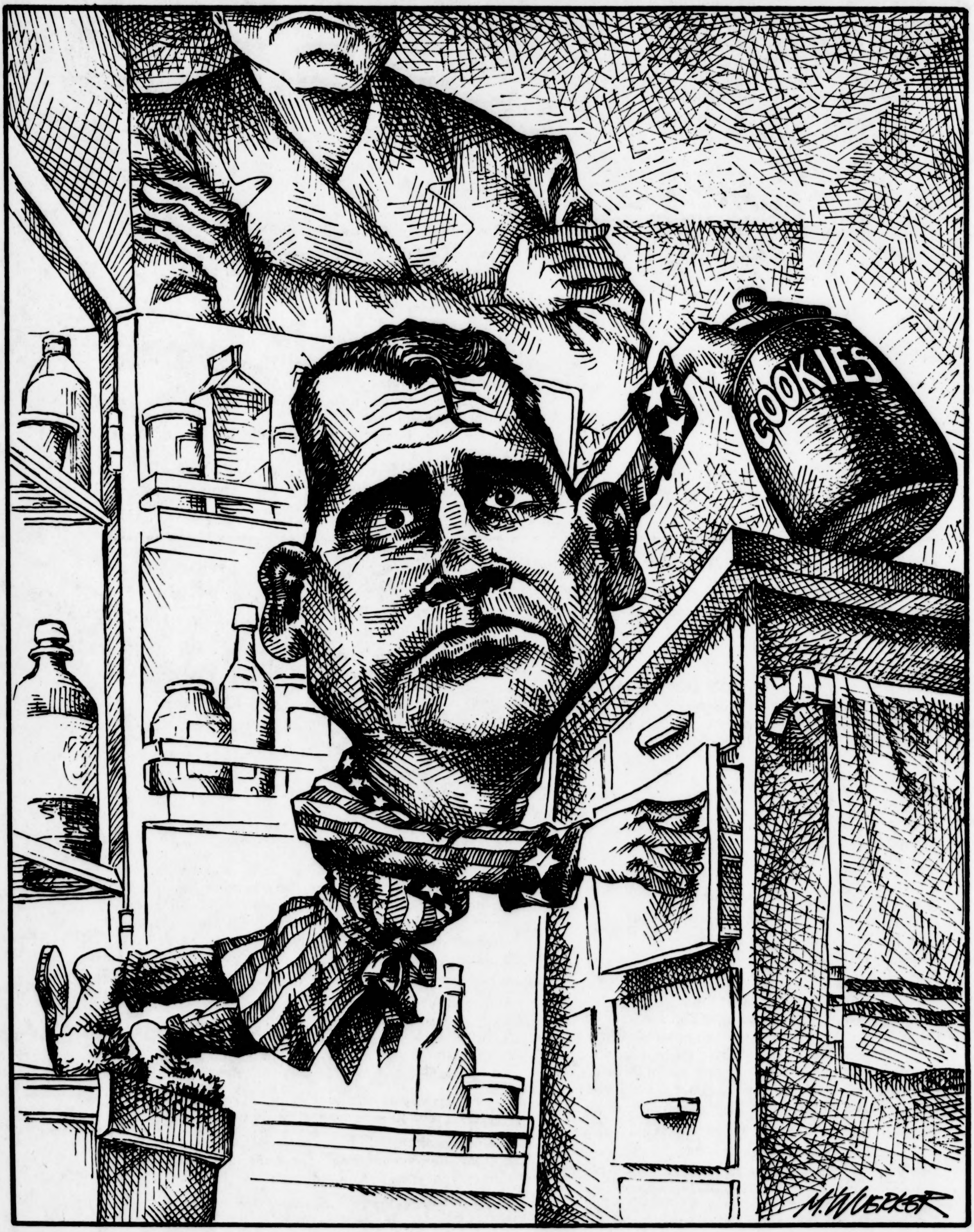
Mix all ingredients and cook in muffin pans or cupcake holders about 30 minutes in covered oven.

You may want to add a few drops of cooking oil to the bottom of each cupcake paper to aid in keeping this dough from sticking to the paper.

This batter can also be cooked in small loaf pans. Makes 12-15 muffins.

COOKIEGATE

BY WILL BAKER *illustration by Matt Wuerker*


COOKIES
M. WUERKER

We continue our coverage of the Special Committee Hearings, now in their fourth day, with the testimony of Private Toliver Soforth, who will be taking the stand in a few moments. Viewers will recall yesterday's dramatic revelations that several cookies are now believed missing from the public jar, some of them perhaps in the possession of Other-Side-of-the-Tracks groups with access to sticks and — according to some authorities — stones. Those revelations, coming from Deputy Assistant Undersecretary of the Kitchen Regina Momaday, followed Monday's bombshell: profits from the cookie sales may have been kept in Swiss chocolate later traded for candy cigarettes targeted for Latino children, a move to stunt their growth and thus interdict the flow of major-league talent from the barrios south of the border. Many observers believe that Soforth may supply the link — a "smoking cigarette" — to the President.

We see that the Committee members have taken their seats, and Counsel Julius Orangefeldt is ready to resume questioning, so let's go to the floor . . .

Counsel: Good morning, Private Soforth.

Soforth: Good morning, Mr. Orangefeldt. I'd like to begin, if I may, with the Pledge of Allegiance.

(Rustling, mumbling, cries, the creak of many chairs as all in the chambers rise and chorus the Pledge.)

Counsel: Thank you, Private. May —

Soforth: I'd also like to ask the chairman to lead this committee in two minutes of silent prayer. They're going to need it.

(Laughter, more rustling. The Chairman bows his head and the room is silent for two minutes.)

Counsel: Thank you again, Private. We —

Soforth: Thank the Lord. He's the Commander-in-chief.

(Thunderous applause. Catcalls at the Committee members.)

Soforth: And I'd just like to add one thing. I'm here, sir. Right in front of you. A private just doing his job. My mother, you see, *didn't* have an abortion. She grew up poor on a hog farm in Arkansas and baked her own cookies for her own family.

(More thunderous applause. More catcalls.)

Counsel: You are indeed here, Private. We acknowledge that, with every mark of personal respect for your mother. But we do have an investigation to complete, about these cookies.

Soforth: Cookies?

Counsel: Yes, Private. Cookies. You know the cookies I am speaking of?

Soforth: I'm not sure, sir. That's a very imprecise term. There are all *kinds* of cookies.

Counsel: We were speaking yesterday of certain confections, certain pastries, that found their way across the tracks. You took those cookies —

Soforth: I'm sorry, sir. That's not correct. I didn't *take* the cookies, if they were cookies. Certain items were made available to me, in my capacity as Private in Charge of Kitchen Staff Security.

Counsel: All right, then. Certain cookies were "made available" to you. Describe —

Soforth: Again, sir, I'm not sure these were cookies. "Cookies" has certain connotations. Sugar, diversion, some kind of special treat, even a slang meaning having to do with the members of the fair sex, which I have never in any way shape or form had any hanky-panky with, and as a Marine I resent —

Counsel: Then what do you call these items, Private?

Soforth: What do I call them?

Counsel: Yes, what do you call them?

Soforth: My understanding was that these items were primarily unbleached flour, dried fruit, dairy products, cacao bean, and a little sweetener — probably organic honey. Some people would call them health foods. Sort of yuppie hardtack.

Counsel: I see. But wasn't the dried fruit actually raisins, and isn't cacao known as chocolate in common parlance? Wouldn't some people simply call these chocolate raisin cookies?

Soforth: Some people will say anything, and, you know, one man's dried fruit is another man's raisin. But as I said, sir, whatever you call them I didn't take them. My first encounter, if I remember correctly, was completely inadvertent.

Counsel: You're speaking of the so-called "crumb crumble," the events of May 17th? When you first consumed —

(Penrod S. Limehouse, Soforth's counsel, interrupts.)

Limehouse: I object, Mister Chairman. Counsel is putting words in my client's mouth. He knows perfectly well that Private Soforth did not know at this point what the item was. But it was not "a" pastry, even an unidentified pastry.

Soforth: That's right, it was absolutely *not* a cookie.

Counsel: It was a piece of cookie, wasn't it?

Soforth: That's your word, sir, not mine.

Counsel: A crumb, then? Will you accept crumb, Private?

Soforth *(after long consultation with Limehouse):* It appeared to be a crumb of some kind.

Counsel: You then consumed this crumb?

Soforth: No, I wouldn't say that. More like tasted.

Counsel: Did you swallow?

Soforth *(after more consultation):* I can't honestly say, sir. I don't remember.

Counsel: In any case you tasted a crumb of what might be a cookie. You noticed other crumbs in the vicinity of the jar. Did you report this fact to Undersecretary Momaday?

Soforth: No sir.

Counsel: Why not?

Soforth: Well . . . *(laughs)* . . . my job was *not* to tell the Undersec.

Counsel: Beg pardon?

Soforth: Ignorability. I was in the black, sir.

Counsel: Perhaps you can explain, Private Soforth. You tasted a crumb. You saw other crumbs around the jar. The

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Will Baker is a longtime WER contributor and the author of a number of books, including Mountain Blood *(Touchstone Books, 1988) and* Backward: An Essay on Indians, Time and Photography *(North Atlantic Books, 1987). He is a Professor of English at the University of California at Davis. —J. Baldwin* crumbs appeared to be from a cookie — I know that's my word. Wasn't it your duty to inform your superior of this development?

Soforth:: You don't understand, Mr. Orangefeldt. Maybe it's time to recite the Pledge again. We're dealing with the Cookie Monster here. This is a very dangerous world and you do not play games around the Cookie Monster.

Counsel: We're all aware of that threat, Private Soforth. The members of this committee are all aware —

Senator Hitch: I don't know about that. I just don't know about that. It seemed to me when Private Soforth — and I can't tell you, Private, how deeply moved I have been at your testimony and the heroism and patriotism it reveals, and the ultimate *respect* for cookies — anyway as I am saying, it seemed to me that when you recited the Pledge a few minutes ago, a number of my colleagues on the other side of the aisle were pretty slow getting to their feet. And I was disturbed at that. I was concerned.

Senator Boring: I'm surprised and shocked at what the Senator just said. There was a bipartisan effort to rise for that Pledge. I think there's no question about it. A few members, I think, didn't hear correctly at first, and there are a few with knee and hip problems, medical problems, that require an extra second or so. But they were surging upward from the word go, and to suggest otherwise, to suggest some lack of patriotism —

Hitch: I'm not suggesting that.

Boring: . . . some reluctance . . .

Hitch: There *was* reluctance . . .

Chairman: Gentlemen, I'm going to rule this discussion out of order and ask Counsel to return to the cookies.

Counsel: Thank you Mister Chairman. Now, Private Soforth, did you *see* the Cookie Monster or any of his agents actually in the room before or just after you tasted the crumb?

Soforth: Agents?

Counsel: Representatives of the Monster, or his interests.

(Consultation with Limehouse ensues.)

Soforth: I can't say I did, sir. At this time. As I recollect.

Counsel: Did you observe anybody else in the room?

Soforth: Any*body?*

Counsel: Anybody. Anything out of the ordinary.

Soforth: Bodies and things are of course very different. I saw no *body,* I'm sure of that.

Counsel: How about things?

Soforth: Oh, lots of those. The refrigerator, the sink, the microwave . . .

Counsel: *Animate* things.

Soforth: Animate?

Counsel: Moving.

Soforth: Moving . . . let me see. Yes, actually, I did see something moving.

Counsel: Could you tell us what it was?

(Consultation with Limehouse.)

Soforth: A hand. It appeared to be a hand.

Counsel: You were alone at this time? In the kitchen?

Soforth: Alone?

Counsel: Alone.

(Consultation.)

Soforth: Except for the hand.

Counsel: What was the hand doing?

Soforth: It was just walking along. On its fingers.

Counsel: Where was it walking?

Soforth: Around the jar, more or less. Back and forth.

Counsel: Did it approach the jar?

Soforth: I said it was walking around the jar. If that's an approach, then I guess you could say it did.

Counsel: Did it touch the jar? Enter the jar?

Soforth: I don't know. I didn't see.

Counsel: You didn't see? How could you not see, Private?

Soforth: I was not looking. I told you I saw the hand, a moving hand, and that's all. I didn't look at it anymore.

Counsel: You're saying you looked away, then?

Soforth: Away? I don't know about that, sir. I wouldn't say away.

Counsel: Did you identify the hand?

(Consultation with Limehouse.)

Soforth: No sir.

Counsel: Well, was it *attached* to anything else?

Soforth: I suppose so. There was a sleeve.

Counsel: Describe this sleeve for us, please.

Soforth: It was a regular sleeve. A khaki shirt. Fairly clean and well pressed. I didn't have time to observe it too closely.

Counsel: Didn't have time? Why didn't you have time, Private?

Soforth: I was glancing at the door. I thought I heard something. It sounded like a large, heavy foot outside.

Counsel: So you thought you heard something, so you looked away from the hand? Is that right? How long did you observe the door?

Soforth: I don't know precisely. I had a lot of things on my mind. We knew the Monster was slipping peanut crunch items across the tracks. His proxies down south were still sending infielders our way and we expected pitchers any day. The Monster was definitely up to his old tricks. It was a very intense time.

Counsel: What did you see when you looked back at the jar?

Soforth: The lid was off, and there appeared to be some items missing. I know you're going to ask, Mister Orangefeldt, about the hand. It was gone, absolutely.

Counsel: I have just one or two more questions, Private Soforth. I want you to think very carefully about the answers. Take all the time you need. First, during this whole time — seeing the crumbs, tasting the crumbs, observing the hand and then looking away — where were *your* hands?

Soforth: My hands?

Counsel: Your hands.

Soforth: Which hand, specifically?

Counsel: I'd like to hear about both. Start with either.

Limehouse: I have to object, strenuously object, to this harrassment. If counsel wants to question my client's other hand he should do so directly and openly. We all know perfectly well where his right hand was.

Counsel: I want the record to be clear —

Limehouse: Private Soforth has a right hand and another hand and they speak for themselves. I might say he is right-handed and has always been right-handed.

Chairman: The witness can answer for himself, Mr. Limehouse.

Soforth: I am very proud to answer that question. My right hand was placed over my heart, where it always is unless assigned specifically to other duty. I've kept it there during these proceedings, you may notice, unless I have to turn the page of my notebook.

Counsel: We appreciate that, Private. You will remark that most members of the Committee join you in that silent pledge, except when it is necessary to adjust their spectacles or turn the page of an important document. So we are not questioning the right hand. We are curious —

Soforth: You want me to say that word, Mr. Orangefeldt? Okay, I'll say it for you. Left. You want to ask about what you call my left hand. I prefer to call it my other hand. You may have a left hand, Counsel, and some members of this Committee —

Counsel: Let's call it your other hand, then. Just tell us what it was doing at this time.

(Consultation with Limehouse.)

Soforth: That would be . . . uh . . . difficult, sir.

Counsel: Why is that, Private? You seem to know where your right hand was.

Soforth: My other hand is in the black, sir. It does, of course, have certain cover activities. Re-establishing the pleat in my trousers, checking for dust on Dawn's file cabinets —

Counsel: Dawn is Ms. Rose Dawn, your secretary?

Soforth: That's right, and if anyone tries to make any imputation, the slightest suggestion of any sort of —

(Rustles, cries of "Outrage!" "Who dares?" "Never!" "My daughter!" "Your sister!" throughout the chambers. Chairman gavels down the confusion.)

Soforth: In short, sir — if that is your question — Ms. Dawn is *not* a cookie, and never has been.

Counsel: That is not my question. No one accuses Ms. Dawn of being a cookie. My question is what was your other hand doing?

Soforth: I'm explaining that, sir. It has cover activities. Creasing seams, as I mentioned. Holding a telephone receiver during dialing. Occasionally scratching just behind the other ear or shading the eyes because, as we all know, the parade cap has no visor.

Counsel: Was it engaged in any of these activities during the time in question?

(Consultation with Limestone.)

Soforth: I don't know, sir.

Counsel: You don't know what your other hand was doing?

Soforth: Maybe I'd better explain something, Mr. Orangefeldt. If you're dealing with the Cookie Monster, whose avowed and published purpose is to ferret out, wherever they are, *every single cookie in the world,* and then hoard those cookies and finally *gobble* them up — and I mean every one of them, sir, your children's and my children's and those of all the world's children — then you have to be just as sneaky and just as ruthless as he is. Sometimes that means you can't be a nice guy and always tell the truth. But you don't want to lie, either. It's not easy to lie, sir. Especially if you're an honest man. That's where ignorability comes in. If your other hand is on an assignment, an off-the-books caper where the security of our cookies is at stake, then you have to ignore that hand. That hand, as far as you or the world is concerned, is just a trouser-creaser or coffee-cup holder or lint-picker. What else it does — you never ask. You glance away, supposing you heard something — the Monster is always out there — or you bow your head and close your eyes in silent prayer, as I often do.

Counsel: I take it that is what happened later, in your office? When the stack of cookies was "made available" to you?

Soforth: Cookies? I'm not sure you could call them cookies, sir.

Counsel: In any event, you returned to your office, after observing the walking hand, and decided to engage in a few moments of private devotion, is that right? And when you opened your eyes you noticed a stack of . . . pastry items . . . on your desk?

Soforth: That's right, sir. Absolutely unexpected.

Counsel: But you saw the potential for the candy cigarette deal? You were still worried about the influx of Spanish-speaking players?

Soforth: Of course I was. Baseball is our game. One hundred and ten percent American. Always has been and always will be. But there are people down there, the Sandinistas, who will stop at nothing to infiltrate players into our system. The Japanese, too, have to be watched. As I said, Mr. Orangefeldt, it's a dangerous world, and at the moment these tools of the Monster have an unfair advantage.

Counsel: Yes, Private?

Soforth: Whenever they're not on the diamond our players try to keep that right hand over the heart, the other hand pinching a seam, and the head down in prayer. As a result of this devotion they are prone to muscle cramps, and base coaches have a hard time working their signals around this basic posture. But vicious cookie-stealers don't have that problem. They rely solely on godless calisthenics and pepper games. So our plan — and I'm still proud of it — was to get them into cigarettes — candy at first and the hard stuff later — so as to stunt their growth. The Japanese are already short, fortunately, and they bow even more than we do, so it's not a problem.

Chairman: Excuse me, Private, for interrupting, but I have received notes from members of the Committee requesting a recess. Not all of us are as young as you are, Private, and we can't hold these positions for hours on end. We develop Pledge elbow and Prayer neck. *(Chuckles.)*

Senator Hitch: Just a moment, Mr. Chairman. Just stop right there. I am very disturbed at that remark. I will not be a party to any form of ridicule. I am flabbergasted that you would make fun of God and country.

Chairman: I was not making fun of God and country. I was making fun of arthritis. I am appalled that you could be flabbergasted.

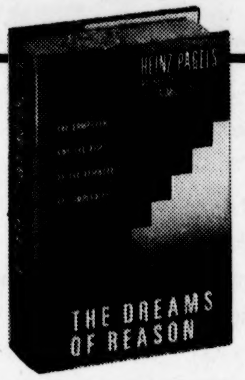
Senator Boring: Well, I am outraged that you could be appalled at his being flabbergasted. If the Pledge is under attack, then I'm going to be on my feet, and so is every red-blooded American. And we will shout it, sir, to the rooftops!

(Uproar, cries of "Hear, hear!" "Me too!" "The Pledge!" as everyone in the room rises. In a thunderous chorus they recite the Pledge of Allegiance. After the last syllable dies away, a sound is heard outside: large heavy feet trudge off and a deep, gravelly voice is heard muttering, "Hopeless . . . hopeless . . . " ■

The Dreams of Reason

Heinz Pagels, one of the few great explainers, here picks at the complexities of cognition and a host of related subjects. Much of his attention is directed at the role of computer-as-instrument, in the same sense that a microscope is an instrument. But he carries the discussion far beyond that, examining territory usually ignored by those made uneasy by cross-disciplines. To me, the greatest value of the book is that it integrates many classic philosophical and scientific arguments. Happily, it is done with Dr. Pagels' characteristic wry wit and considerable vim. Alas, it's his last work; Heinz Pagels was killed in a mountain-climbing accident last summer. —J. Baldwin

The Dreams of Reason
Heinz Pagels
1988; 352 pp.
$18.95
($20.95 postpaid) from:
Simon and Schuster
Mail Order Dept.
200 Old Tappan Road
Old Tappan, NJ 07675
800/223-2348



or Whole Earth Access

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Joseph Ford, of Georgia Tech, hails this new science of chaos as the "beginning of the third revolution in physics in this century," the other two revolutions being the theory of relativity and the quantum theory. I am inspired by Ford's expositions on chaos, but disagree with his assessment. The previous "revolutions" in physics postulated new physical laws. By contrast, all the theoretical work on chaos, while it profoundly illuminates actual physical processes and deepens our understanding, does not postulate any new physical laws. Rather it analyzes existing physical laws in an exciting new way. Chaos was "sitting there" in the existing equations of physics waiting to be understood.

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Scientific theories, by design, are always vulnerable to destruction just like a species, subjected to environmental pressure, is subject to extinction. Because of that vulnerability, scientific truth has the strength that comes of survival in a challenging environment. The skills of the scientist (adherence to rigor being but one of them) are practiced in the arena of intense criticism and experimental test — they are vulnerable to challenge and challenged they are. Even when scientific theories fail to survive, as most eventually do, their evolutionary progeny carry the best "genes" — the ideas that still work — of the previous theory intact. Ironically, it is the willingness to risk everything, even existence itself, that is the guarantor of survival. Welcome to the world of the scientific method — red in tooth and claw!

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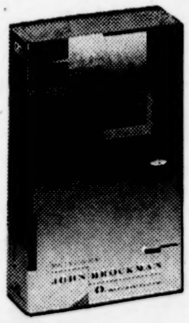
One has to know how things work from the "bottom up." Otherwise, the way things work is understood magically and is likely to encourage magical thinking about the world (as it does in industrial countries). By educating their people to master the technical world from the bottom up, the Japanese, who discovered that imitation and copycat technology can carry you only so far, came eventually to dominate many world markets. There are no substitutes to a "bottom-up" understanding in any field of human enterprise. . . .

The "hands-on" approach is the key to success in modern science; people who don't want to get their hands dirty have no business in science. Once I was carrying a viewgraph projector to a lecture room to be used by the afternoon seminar speaker. A colleague with a distinguished and noble Asian ancestry noticed me carrying the projector and asked why I was doing this. I said that since I was in charge of the seminars that year, I had to provide the visual aids for the speakers. My friend looked concerned. Then he said that since next year *he* was in charge of running the seminars he would have to get a secretary to carry the projector; he wasn't going to do it. I responded, "That, my friend, is one big reason that modern science began in the West instead of the East." He grasped my point immediately, and the next year I did see him conspicuously carrying the projector without complaint.

The Reality Club

*The Reality Club is a gathering of thinkers — a modern intellectual salon where ideas get a good workout. The last **WER** I guest-edited (#55, Summer '87) featured a number of articles by members of the club. Now, most of those authors plus some we didn't have room for hold forth in this book, edited by the Reality Club founder, John Brockman. The articles offered here generally run deeper and longer than those we published. (None are the same ones.) Some are footnoted. All are mind-stirrers. —J. Baldwin*

The Reality Club
John Brockman, Editor
1988; 326 pp.
$9.95
($11.45 postpaid) from:
Lynx Books
41 Madison Avenue
40th Floor
New York, NY 10010
or Whole Earth Access



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Recent studies on fetal learning by DeCasper and colleagues will be detailed here briefly. In the first experiment a group of pregnant mothers read aloud a paragraph from Dr. Seuss's *Cat in the Hat* twice a day for the last six weeks of pregnancy. After birth the infant was tested for preferential sucking in response to two different stimuli. The first was the reading of the same *Cat in the Hat* paragraph, and the second was the reading of a matched paragraph from another story (matched for phonemes and duration). The infant clearly responded with increased preferential sucking to the Seuss story.
—*Julius Korein, M.D.*

•

I took the plane to New York.

I used the plane in the garage.

Words have multiple possible meanings. Because of this we can never simply say: "The meaning of this word is such and such." The context that surrounds a word determines its meaning. This is true to such an extent that even in the preceding examples, we can reverse the meanings of the word *plane* simply by supplying a new sentence that provides a different context:

John needs to do some woodworking.
I took the plane to New York.

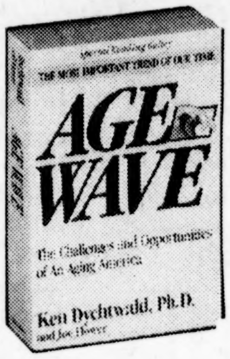
How did you get to New York?
I used the plane in the garage. . . .

The reading process relies more heavily on one's memory of what has gone on in the past than it does on the words on the printed page. —*Roger Schank*

Age Wave

Can you continue a whippersnapperous role forever? Unlikely, as many of us are finding out. But "old age" isn't what most of us think it is, either, at least not according to this potboiler of a book. I say potboiler because the main discussion is older-folks-as-a-potentially-lucrative-market. Well, sometimes it's the marketing people that have the facts at hand; I certainly learned a bit of demographics here. Easily, too. Maybe I'm gettin' old, but I found it fascinating.
—J. Baldwin

Age Wave
Ken Dychtwald, Ph.D.
1989; 350 pp.
$19.95
($21.45 postpaid) from:
St. Martin's Press
175 5th Avenue
New York, NY 10010
800/221-7945
or Whole Earth Access


THE MOST IMPORTANT TREND OF OUR TIME
AGE WAVE
The Challenges and Opportunities of An Aging America
Ken Dychtwald, Ph.D.

•

In July of 1983, the number of Americans over the age of 65 surpassed the number of teenagers. We are no longer a nation of youths.

•

There are unmistakable trends toward increasing divorce and remarriage. Currently, more than 50 percent of all marriages end in divorce, a percentage that reflects a 43 percent increase since 1970. Eighty percent of divorced people remarry, making "serial monogamy" the norm rather than the exception in America.

•

During my travels across America over the past 15 years, I have repeatedly been struck by how many stories I hear of men and women at all stages in their adult lives who have chosen to embark on a path or pursue a dream that was somewhat out of line with what most other people their age were doing, and even with what they themselves had been doing earlier in their lives. Although no one has yet conducted a study of the number of people who are shedding the confines of the linear life plan for the more diverse and flexible choices of the cyclic life plan, I am convinced that this is the wave of the future.

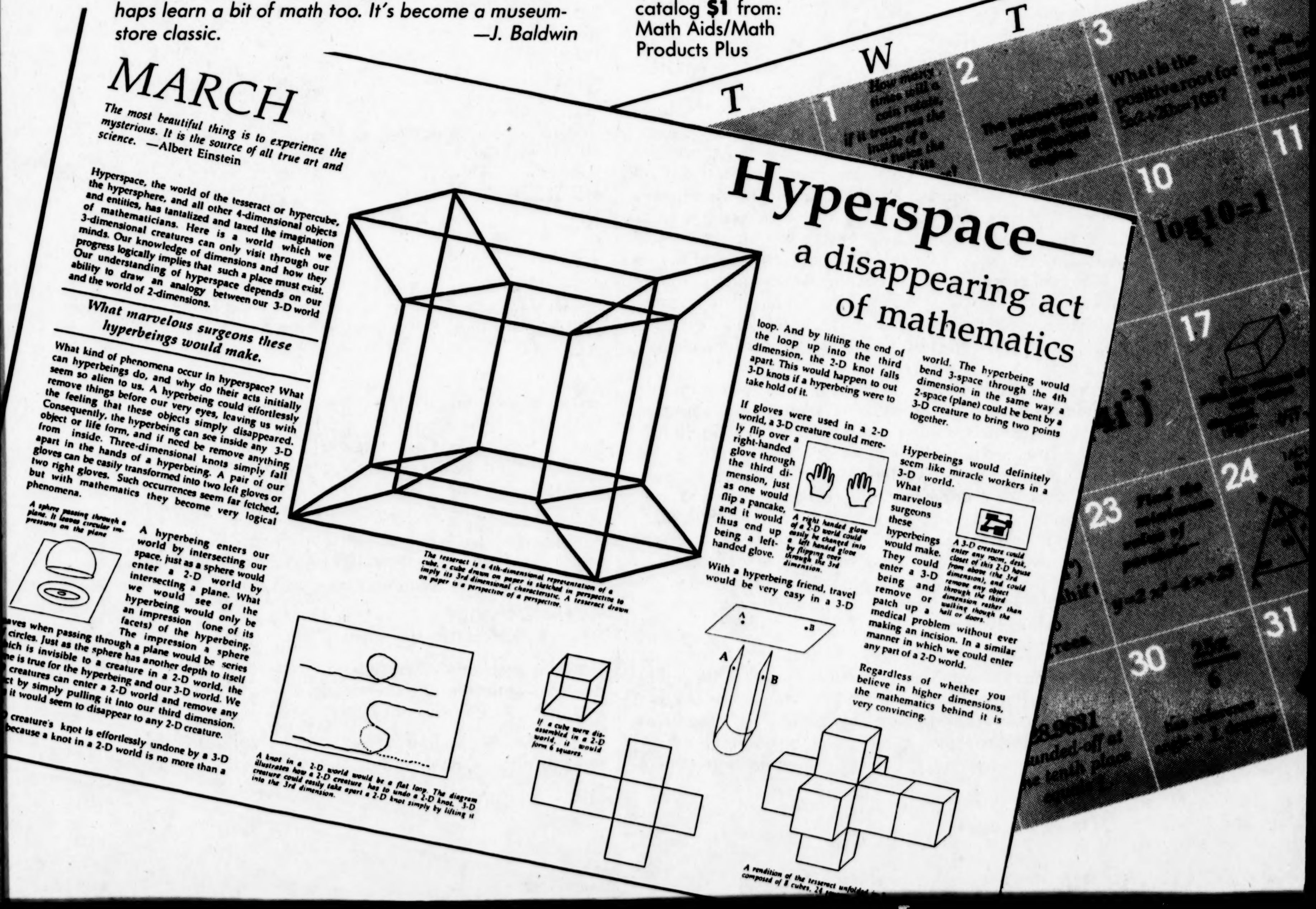
•

Of the 30 million Americans over the age of 65, only 10 percent show even the mildest loss of memory, and fewer than half of those show any serious mental impairment. Most of the losses in mental capacity happen to the very old, not to people in their sixties, seventies, and early eighties, and are due not to age itself but to depression, drug interactions, lack of exercise, or one of many other reversible conditions. As we attack these problems with greater public awareness and proper care, the percentage of people who lose mental faculties as they age should decline greatly.

The Mathematics Calendar 1989

Each day brings a different math problem whose solution is that date. The page opposite is equally interesting, festooned with puzzles, oddities and arcana. Wonderful! Start your day with a thoroughly bent mind, and perhaps learn a bit of math too. It's become a museum-store classic.
—J. Baldwin

The Mathematics Calendar 1989
Theoni Pappas
$10.45
postpaid;
catalog **$1** from:
Math Aids/Math Products Plus
P. O. Box 64
San Carlos, CA 94070
415/593-2839
or Whole Earth Access


W
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What is the positive root for
log 10=1

MARCH

The most beautiful thing is to experience the mysterious. It is the source of all true art and science. —Albert Einstein

Hyperspace, the world of the tesseract or hypercube, the hypersphere, and all other 4-dimensional objects and entities, has tantalized and taxed the imagination of mathematicians. Here is a world which we 3-dimensional creatures can only visit through our minds. Our knowledge of dimensions and how they progress logically implies that such a place must exist. Our understanding of hyperspace depends on our ability to draw an analogy between our 3-D world and the world of 2-dimensions.

What marvelous surgeons these hyperbeings would make.

What kind of phenomena occur in hyperspace? What can hyperbeings do, and why do their acts initially seem so alien to us. A hyperbeing could effortlessly remove things before our very eyes, leaving us with the feeling that these objects simply disappeared. Consequently, the hyperbeing can see inside any 3-D object or life form, and if need be remove anything from inside. Three-dimensional knots simply fall apart in the hands of a hyperbeing. A pair of our gloves can be easily transformed into two left gloves or two right gloves. Such occurrences seem far fetched, but with mathematics they become very logical phenomena.

A sphere passing through a plane. It leaves circular impressions on the plane

A hyperbeing enters our world by intersecting our space, just as a sphere would enter a 2-D world by intersecting a plane. What we would see of the hyperbeing would only be an impression (one of its facets) of the hyperbeing. The impression a sphere
aves when passing through a plane would be series
circles. Just as the sphere has another depth to itself
hich is invisible to a creature in a 2-D world, the
e is true for the hyperbeing and our 3-D world. We
creatures can enter a 2-D world and remove any
ct by simply pulling it into our third dimension.
it would seem to disappear to any 2-D creature.

creature's knot is effortlessly undone by a 3-D because a knot in a 2-D world is no more than a

The tesseract is a 4th-dimensional representation of a cube, a cube drawn on paper is sketched in perspective to imply its 3rd dimensional characteristic. A tesseract drawn on paper is a perspective of a perspective.

A knot in a 2-D world would be a flat loop. The diagram illustrates how a 2-D creature has to undo a 2-D knot. 3-D creature could easily take apart a 2-D knot simply by lifting it into the 3rd dimension.

If a cube were disassembled in a 2-D world, it would form 6 squares.

Hyperspace—
a disappearing act
of mathematics

loop. And by lifting the end of the loop up into the third dimension, the 2-D knot falls apart. This would happen to out 3-D knots if a hyperbeing were to take hold of it.

If gloves were used in a 2-D world, a 3-D creature could merely flip over a right-handed glove through the third dimension, just as one would flip a pancake, and it would thus end up being a left-handed glove.

A right handed glove of a 2-D world could easily be changed into a left handed glove by flipping over through the 3rd dimension.

With a hyperbeing friend, travel would be very easy in a 3-D world. The hyperbeing would bend 3-space through the 4th dimension in the same way a 2-space (plane) could be bent by a 3-D creature to bring two points together.

Hyperbeings would definitely seem like miracle workers in a 3-D world. What marvelous surgeons these hyperbeings would make. They could enter a 3-D being and remove or patch up a medical problem without ever making an incision. In a similar manner in which we could enter any part of a 2-D world.

A 3-D creature could enter any room, desk, closet of this 2-D house from above (the 3rd dimension), and could remove any object through the third dimension rather than walking though the hall or doors.

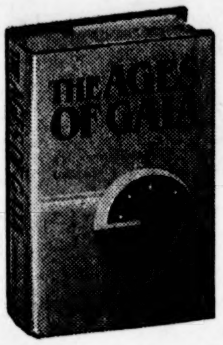
Regardless of whether you believe in higher dimensions, the mathematics behind it is very convincing.

A rendition of the tesseract unfolded composed of 8 cubes, 24

The Ages of Gaia

James Lovelock has upgraded his notion of the Earth as living organism from hypothesis (testable speculation) to theory (persuasive explanation). One might have expected him to modify its radical nature at this stage. He did not. Instead, in this book he extends its ramifications, arguing convincingly that Earth's personality — its ocean character, the ingenious delivery of its water as rain over dry land, its transparent, blue-air skin, and perhaps the very mold of the land itself, are all caused by life. In the biography he tells of Gaia, life is not a fragile weakling, but a hardy, indomitable force that awakens Gaia herself. This is science writing at its best, and the boldest earth-science book in decades. —*Kevin Kelly*

The Ages of Gaia
James Lovelock
1988; 252 pp.
$16.95
postpaid from:
W. W. Norton
500 5th Avenue
New York, NY 10110
212/354-5500
or Whole Earth Access



•

At the risk of having my membership card of the Friends of the Earth withdrawn, I say that only by pollution do we survive. We animals pollute the air with carbon dioxide, and the vegetation pollutes it with oxygen. The pollution of one is the meat of the other.

•

How have we kept our oceans? It seems likely that the presence of life has done it. Robert Garrels tells me that his calculations suggest that, but for life, the Earth could have dried out in about 1.5 eons, midway through the Archean.

•

Much more probably, "Earth's fragile shield" is a myth. The ozone layer certainly exists today, but it is a flight of fancy to believe that its presence is essential for life. My first job as a graduate was at the National Institute for Medical Research in London. My boss was the courteous and distinguished generalist, Robert Bourdillon. I was privileged to watch, and later participate in, the experiments that he and my colleague, Owen Lidwell, made as they tried to kill bacteria by exposing them to unfiltered ultraviolet radiation. Our practical objective was the prevention of cross infection in hospital wards and operating theatres. We were seeking a way to kill airborne bacteria and so prevent the spread of infection. Naked washed bacteria of some species, when suspended in the air as fine droplets, were easily destroyed by ultraviolet. It was impressive, though, how small a film of organic matter would almost entirely protect even these sensitive species. In the real world outside the laboratory, bacteria do not exist suspended in distilled water or a saline solution. In their normal habitats, bacteria are clothed in mucus secretions or the organic and mineral constituents of their environment. They do not live naked anymore than we do. Many practical trials were made before it was realised that ultraviolet radiation is not an effective method of eliminating from the hospital environment the tender fragile pathogens. It takes almost no clothing to stop ultraviolet radiation.

•

I like to imagine some alien chemist arriving in the Solar System long ago and viewing the Earth's pre-life atmosphere. The infrared spectrometer aboard the spacecraft would recognize a planet in the abiological steady state — a planet not yet alive, but with the potential to bear life. On a second visit much later in the Archean, when life had taken charge, a similar analysis would show a degree of chemical disequilibrium impossible for a lifeless planet. Carbon dioxide, methane, hydrogen sulfide, and oxygen cannot coexist at the levels shown in table 4.1 in the presence of sunlight. Given the destructive effects of solar ultraviolet radiation on methane, oxygen, and hydrogen sulfide, the alien would know that there was a large, continuous source of these gases. No conceivable volcanic source could sustain such an atmosphere. The alien would conclude that the Earth was now alive.

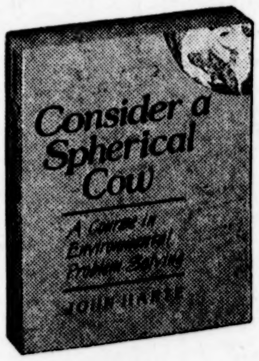
Table 4.1 ESTIMATE OF THE ARCHEAN ATMOSPHERIC COMPOSITION BEFORE AND AFTER LIFE APPEARED

GAS	BEFORE LIFE	AFTER LIFE
Carbon dioxide	dominant	0.3%
Nitrogen	unknown	99%
Oxygen	0	1 ppm
Methane	0	100 ppm
Hydrogen	some	1 ppm

Consider a Spherical Cow

Here's a fine inexpensive paperback for those who want to learn the basics of environmental model-building and don't have the time or money to go back to school. I consider the title a little too cute, but there's nothing wrong with the contents, which outline the methods for modeling just about every environmental process that any of us might be concerned for. If you decide to tackle this one, though, be forewarned: a good head for math, and a willingness to use it, are assumed.
—*Marshall Massey*

Consider a Spherical Cow
John Haute
1988; 283 pp.
$18
($21 postpaid) from:
University Science Books
20 Edgehill Road
Mill Valley, CA 94941
415/383-1430



•

At about what rate could electricity be produced by burning everybody's junk mail in the United States, assuming a conversion efficiency from heat to electricity of 30%?

In the United States we number about 7×10^7 households. Let's assume each receives as much junk mail as mine does. After weighing the ads and pleas in my mailbox for two weeks, I estimate that I am delivered about 2.0×10^4 g of paper junk mail per year. Hence, in the United States, about $2.0 \times 10^4 \times 7 \times 10^7$ or 1.4×10^{12} g/yr of paper are available for conversion to electricity.

According to Section VII.4 of the Appendix, burning paper produces about 2×10^4 J/g. U.S. junk mail would thus produce heat at an annual rate, R, of about

$$\begin{aligned} R &= 1.4 \times 10^{12}\ \text{g/yr} \times 2 \times 10^4\ \text{J/g} \\ &= 2.8 \times 10^{16}\ \text{J/yr}. \end{aligned}$$

How much electric power would this produce? The problem states that the conversion of heat to electricity proceeds at 30% efficiency. . . .

This is roughly one fourth the power output from one typical, modern, nuclear or coal-fired electric power plant.

Questioning Technology

Does our industrial techno-society have you worried? You should be, and the thirty-one writers in this anthology tell you why as they present most of the principal anti-tech arguments. We're not talking emotional air-head stuff here, either — this is the carefully thought-out view. And only the negative view; there are no balancing arguments or suggestions for correcting the problems. (Maybe no corrections are possible?) The editor says that this collection is intended to be thought-provoking. It certainly is. Your worst fears will be abundantly confirmed. Perhaps this will goad you into appropriate action.
—J. Baldwin, unreconstructed technotwit

•

All European tradition, Marxism included, has conspired to defy the natural order of all things. Mother Earth has been abused, the powers have been abused, and this cannot go on forever. No theory can alter that simple fact. Mother Earth will retaliate, the whole environment will retaliate, and the abusers will be eliminated. Things come full circle, back to where they started. *That's* revolution. And that's a prophecy of my people, of the Hopi people and of other correct peoples. —Russell Means

•

The vitality of democratic politics depends on people's willingness to act together — to appear before each other in person, speak their minds, deliberate, and decide what they will do. This is considerably different from the model upheld as a breakthrough for democracy: logging onto one's computer, receiving the latest information, and sending back a digitized response. No computer enthusiasm is more poignant than the faith that the personal computer, as it becomes more sophisticated, cheaper, and more simple to use, will become a potent equalizer in society. Presumably, ordinary citizens equipped with microcomputers will counter the influence of large, computer-based organizations. This notion echoes the eighteenth- and nineteenth-century revolutionary belief that placing firearms in the hands of the people would overthrow entrenched authority. But the military defeat of the Paris Commune in 1871 made clear that arming the people may not be enough. Using a personal computer makes one no more powerful vis-a-vis, say, the US National Security Agency than flying a hang glider establishes a person as a match for the US Air Force. —Langdon Winner

•

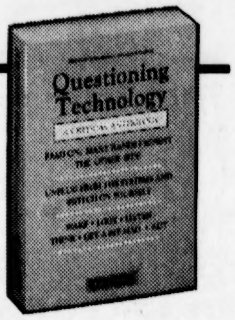
A nightmarish vision of human workers as "materials" is conjured in the following statement by Robert Boguslaw, a leading computer systems engineer:

> We must take care to prevent . . . [a] . . . single-sided analysis of the complex characteristics of one type of systems materials, namely human beings. What we need is an inventory of the manner in which human beings can be controlled and a description of some of the instruments that will help us achieve that control. If this provides us with sufficient handles on human materials so that we can think of them as metal parts, electrical power, or chemical reactions, then we have succeeded in placing human materials on the same footing as any other materials and can begin to proceed with our problems of system design.

As the rhythm of the workplace speeds up to match that of the computer, the resulting increase in both load and rate of work, aggravated by the reliance on symbols and abstractions that the computer demands, creates new physical and psychological pressures. —Craig Brod

•

What would we lose by ceasing to be as a species? What would we lose personally? One possibility, of course, if we knew we were to have no more of us, takes the form of a trigger-happy and hysterical species that pushes all the nuclear buttons right away just to be sure we don't die alone. More optimistically, we might change character pretty quickly if we knew we were the last of our kind. We might stop killing each other; human life might take on some of the dignity that all life should have; we might appreciate our children more and begin to see what we could have been, how with a different set of values and epistemological assumptions we might have managed it all differently. The last days of homo sapiens might, after all, reveal some hidden life-loving capacity, quickened only by the hope that the earth can now restore itself from its long and difficult relationship with the human race. —Sally Gearhart



Questioning Technology
John Zerzan and
Alice Carnes, Editors
1988; 288 pp.
$11.95
($13.45 postpaid) from:
Left Bank Distribution
5241 University Way NE
Seattle, WA 98105
206/522-8864

or Whole Earth Access

The Dynamics Newsletter

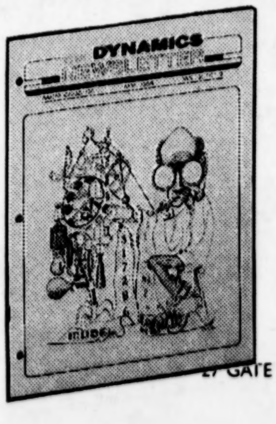
Complexity has a fresh hot scientific field of inquiry designated to it. Called "chaos theory," it links the organizational strangeness of economics, ecology, quantum physics, and computer science into a single frontier of paradoxes. Chaos complexity is also all the rage among those who look to physics for their metaphysics: chaos studies suggest that beautiful order may arise out of randomness — i.e., that the dice of God may be loaded. One of its chief investigators, Ralph Abraham, publishes a small newsletter which keeps tabs on its technical developments, every conference devoted to complex whole systems, and recent publications related to the subject. It's a pretty esoteric publication for a pretty esoteric science (primarily mathematical at this point), but the diligent generalist will be rewarded. —Kevin Kelly

•

"There is a growing conviction in science that the processes of pattern formation and self-organization in complex physical, chemical and biochemical systems develop according to a few typical scenarios which are quite independent of the specific system studied."
—J. A. S. Kelso

•

A couple of very nice ideas came up at the conference. Packard extended the concept of self-organization beyond the usual one of parameter control to that of a system actually changing its phase space, in particular by adding new dimensions. Thelan, while a professed new entrant to this attractor, nicely emphasized the importance of the emergence of stable states as transitions which might be influenced not only by *scalar changes in a control parameter but in changes in control parameters themselves. Although control parameters can be equivalently within the organism or within the task, neither organism nor environment contain specific instruction for change.*



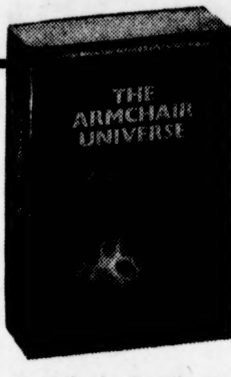
The Dynamics Newsletter
Ralph Abraham, Editor
$30/year
(6 issues) from:
Aerial Press
P. O. Box 1360
Santa Cruz, CA 95061-1360
408/425-8619

The Armchair Universe

The best way to learn about computer programming is to have something to program about. Kee Dewdney gives the aspiring hacker a wonderful grab bag of bent visions of armchair universes to code out. (Kee is a professor of computer science at the University of Western Ontario, Canada, and runs the Computer Recreations column in ***Scientific American****). My favorite section of this great book is the one about Flibs, which are short programs that compete with each other to solve a simple problem, such as predicting the next symbol in some repetition of a brief pattern. The most successfully predictive Flibs are allowed to breed by a computational crossover "chromosome." Other flibs may occasionally be mutated. Eventually one Flib evolves which knows the pattern by heart — the birth of a home-brewed, artificial life.*

I am using this book as a text for students in my advanced programming class at a Silicon Valley university. So far we have explored Dewdney's "Wallpaper for the Mind" (beautiful self-interfering chaotic iterations), the Mandelbrot Set (a fractal landscape), and cellular automata (ecological matrices), all running on personal computers. And we are having a blast. Thanks, Kee. —Rudy Rucker

The Armchair Universe
A. K. Dewdney
1988; 330 pp.
$13.95
($16.95 postpaid) from:
W. H. Freeman and Co.
4419 W. 1980 South
Salt Lake City, UT 84104
801/973-4660



or Whole Earth Access

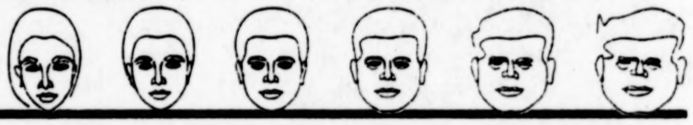
●

Artificial Intelligence and Artificial Insanity
Like its conversation, RACTER's short stories tend to ramble, but the program's vignettes can be marvelously funny and even thought-provoking: "Bill sings to Sarah. Sarah sings to Bill. Perhaps they will do other dangerous things together. They may eat lamb or stroke each other. They may chant of their difficulties and their happiness. They have love but they also have typewriters. That is interesting."

Even a layperson may have concluded that RACTER is decidedly schizophrenic.

●

The idea that every face is a point in face space suggests another fascinating transformation. Since any two faces in face space can be joined by a straight line, one can ask the program to generate a transitional sequence from one face to another. [HP scientist Susan] Brennan finds such sequences particularly intriguing when the two endpoint faces are male and female.



Elizabeth Taylor (as Cleopatra) meets former President Kennedy in face space.

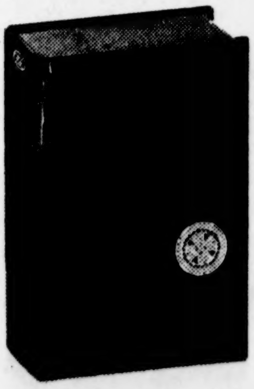
Artificial Life

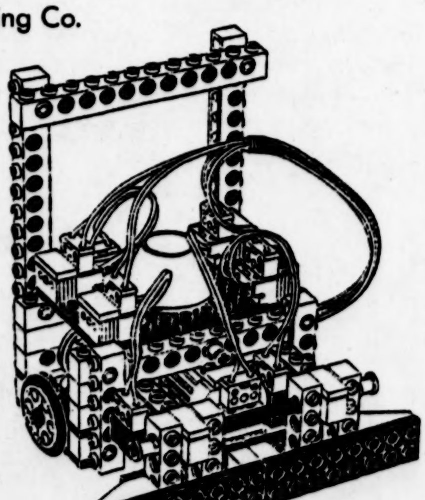
Our manufactured environment of chemicals and computers has become thick enough to ferment its own life. Out of a brew of self-replicating software, extremely teeny-tiny nano-machines, and computer-network ecologies, the first proto-organisms of artificial life are emerging. Some, like computer viruses, are unanticipated births; others, like Richard Dawkins's biomorphs, are boiled out with much effort. All of them point to an Age of Simulation — a parallel reality that will not be called "artificial" for long.

This book contains the proceedings of the first Artificial Life Conference (see ***WER #58****). The papers are richly varied, unpredictable, and mind-changing, if not career-changing. The book closes with a fabulously annotated bibliography that clinches this as the standard sourcebook for second-wave life. —Kevin Kelly*

Artificial Life
Christopher G. Langton, Editor
1989; 655 pp.
$21.50
($24.50 postpaid) from:
Addison-Wesley Publishing Co.
1 Jacob Way
Reading, MA 01867
800/447-2226

or Whole Earth Access





A LEGO/Logo animal with touch sensors on front.

●

Perhaps there is a sense in which a form of natural selection favors, not just adaptively successful phenotypes, but a tendency to evolve in certain directions, or even just a tendency to evolve at all. If the embryologies of the great phyla, classes and orders of animals display an "eagerness" to evolve in certain directions, and a reluctance to evolve in other directions, could these "eagernesses" and "reluctances" have themselves been favored by a kind of natural selection? Is the world filled with animal groups which not only are successful, as individuals, at the business of living, but which are also successful at throwing up new lines for future evolution?
—*Richard Dawkins, "The Evolution of Evolvability"*

●

In his remarkably prescient 1959 talk "There's Plenty of Room at the Bottom," [Richard] Feynman proposed using machine tools to make smaller machine tools, to be used in turn to make still smaller machine tools, and so on all the way down to the atomic level. Feynman prophetically concluded that this is ". . . a development which I think cannot be avoided." Such nanomachine tools, nanomachines and nanodevices are termed *Feynman Machines* (FMs). . . .
—*Conrad Schneiker, "Nanotechnology with Feynman Machines"*

●

An *animal construction kit* is an interactive computer system that allows novice programmers to assemble active artificial animals out of prefabricated components. These components include sensors, muscles or other effectors, and computational elements. They also include structural components such as bones and joints. To be useful, an animal construction kit must also provide a world for the animal to live in, and must support the co-existence of multiple animals of different species.
—*Michael Travers, "Animal Construction Kits"*

[For free information on the LEGO/Logo animal, shown at left, write: Lego Educational Systems, 555 Taylor Road, Enfield, CT 06082; 800/243-4870. —Ed.]

Computer Viruses

Viruses, little bits of code (malice incarnate) that append themselves to honest programs, first replicate themselves before doing their dirty work: erasing files, crashing disks, or destroying other information and functions you depended on. They've created a lot of hysteria in the computer community and rightly so — they show us just how vulnerable our computers really are. Ralph Roberts has plowed through the chaos of computer virus information available on telecommunication systems and in the print media, putting it into coherent, readable form. His descriptions of the various known viruses and remedies are excellent, giving a good overall picture of the dilemma. This isn't an elegant book, but for the non-programmer it's practical, useful, and the best source of information currently available. —*Corinne Cullen Hawkins*

Computer Viruses
Ralph Roberts
1988; 170 pp.
$14.95
($18.20 postpaid) from:
Compute! Books/
Chilton Book Co.
P. O. Box 2165
Radnor, PA 19089-0230
800/345-1214

or Whole Earth Access

•

Computer viruses are scary enough on their own, but how about this? The Nuclear Regulatory Commission announced on August 11, 1988 that it was proposing to fine the Peach Bottom nuclear power plant on the Susquehanna River (near the Pennsylvania-Maryland line) a whopping 1.25 *million* dollars.

This came about after NRC inspectors caught operators numerous times "sleeping and/or other acts of inattention to duty." Sleeping is bad enough when you are supposed to be monitoring a nuclear plant, but it's the "other acts of inattention" that's really more frightening.

They were playing computer games!

One of the classic ways in which large systems receive viral infections, as we discussed earlier, is through people bringing in games downloaded from who knows where. The thought of a virus loose in computers that have anything at all to do with nuclear power plants is very unsettling.

•

Every unusual event does not a virus make.

Make sure you have a static free environment surrounding your computer.

Immediately after encountering a strange event, make notes in as detailed a form as possible, regarding each step you performed in the few moments preceding the event. You'll need these to help the manufacturer's customer support personnel determine corrective actions for you. And you may have to repeat them several times. You should be prepared to answer questions such as these:

> What job were you running?
> Precisely what were you doing?
> What keys did you press?
> Did the power fail?
> Did the plug get pulled?
> What file were you working on?
> Have you had any recent hardware problems while running any job?

Run the DOS CHKDSK program on the disk you were using. If the disk has been partially damaged by a power surge/drop/outage or static charge, you can encounter very strange results. If CHKDSK reports errors on a given disk, you'll need to check all the files from that disk to see if they're still intact.

Computer Viruses: A High-Tech Disease

Ralf Burger, of the Chaos Computer Club in Germany (a notorious hackers' center), dissects the guts of computer viruses. His book is strewn with lines of code. With Germanic thoroughness, he illustrates the anatomy of various species of virus, and explains exactly how they work in technical programmer's detail, how they might be subverted, and how several can be reconstructed in full code so that you can (gulp!) personally see how one wiggles. Saying that this is a dangerous technical manual you should keep away from inquisitive teenagers and immature adults will not keep them away. Kids: This is a boring scientific report on computer diseases.
—*Kevin Kelly*

Computer Viruses: A High-Tech Disease
Ralf Burger
1987; 276 pp.
$18.95
($21.45 postpaid) from:
Abacus Software, Inc.
5370 52nd Street SE
Grand Rapids, MI 49508
800/451-4319

or Whole Earth Access

•

What to do when you're infected?
Twelve steps which can prevent more damage:

1) Turn the system off. This prevents any spread of the virus. Memory-resident viruses are also removed.

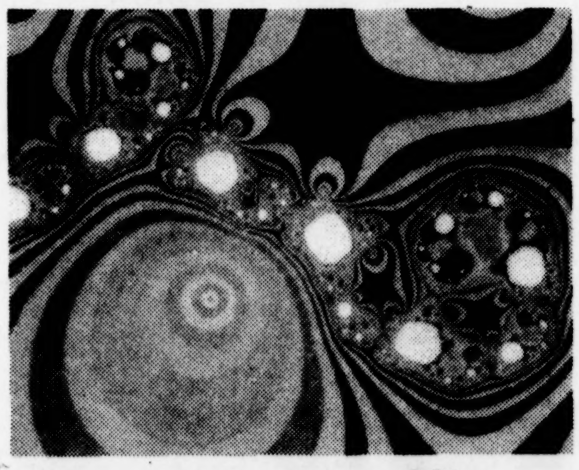
2) Disconnect all data transfer lines. Only peripheral devices absolutely necessary for the operating of the computer should remain connected. This prevents a) infections from propagating further beyond the computer and b) viruses from entering the computer from the outside.

3) Write-protect media as far as possible. This means covering the write-protect notch on diskettes. Large drives (e.g. Control Data) and magnetic tapes generally have write-protect switches.

4) Use the ORIGINAL VERSION of the operating system to reboot the system. This means the original (generally write-protected) diskette or disk pack from the manufacturer. A virus may have crept onto the backup copies.

The Fractal Universe Catalog

Mail-order source of fractal videos and publications.
—*Kevin Kelly*



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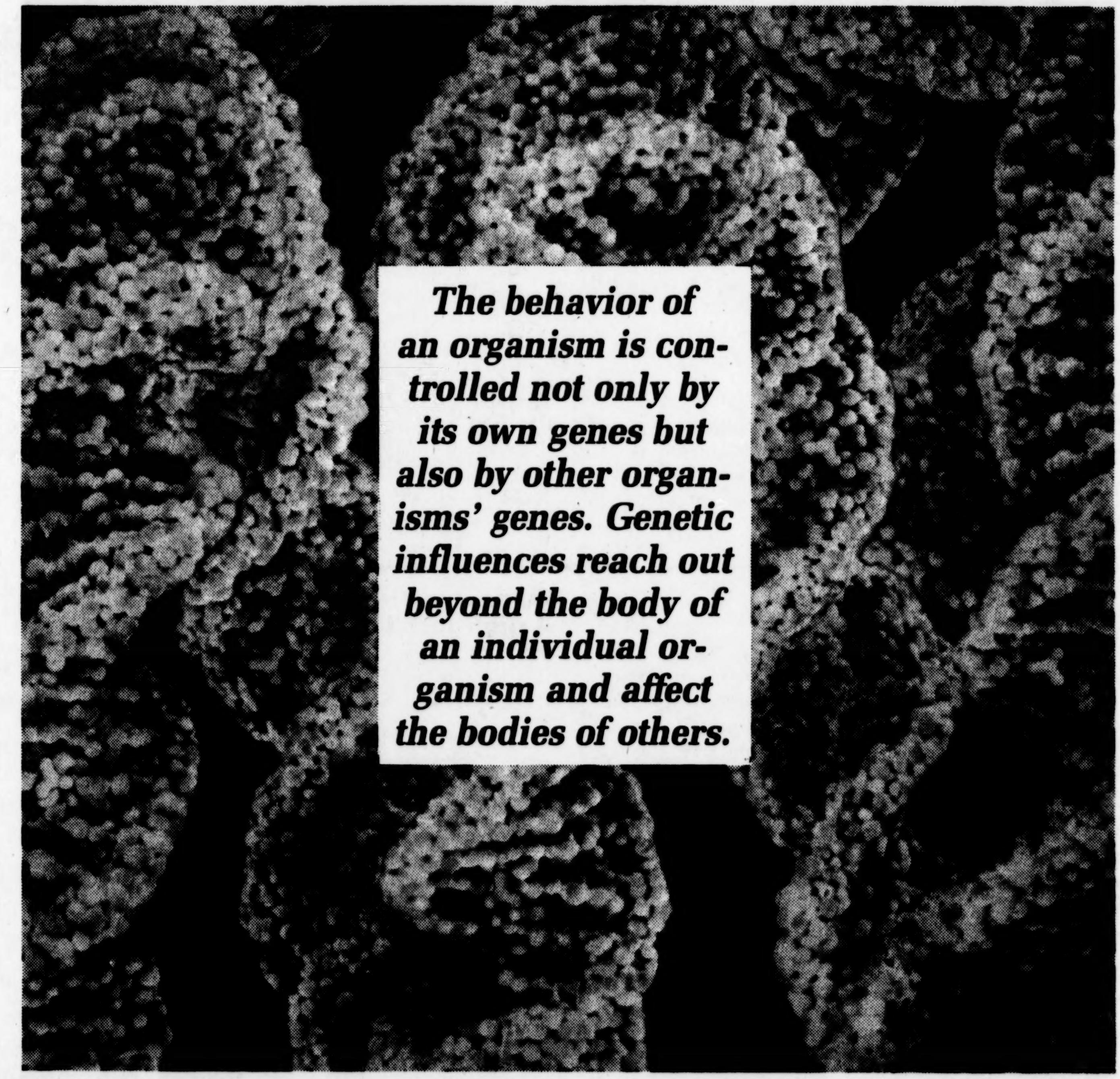
Universal Parasitism and the Co-evolution of Extended Phenotypes

by Richard Dawkins



The behavior of an organism is controlled not only by its own genes but also by other organisms' genes. Genetic influences reach out beyond the body of an individual organism and affect the bodies of others.

Powers of Ten

For a magazine that used to be called CoEvolution Quarterly, *we've been too many quarters without any coevolution news. Richard Dawkins, a biologist at Oxford, offers a refreshing perspective on evolution — from the gene's point of view. He begins from his radical position expressed in* The Selfish Gene *(1976, Viking) — that you need to pay attention to the gene, which is the man behind the curtain in the Oz of ecology. The organisms produced by a gene are mere Hollywood shadows in an evolutionary sense.*

To understand Dawkins' thesis you'll need to keep the following distinctions in mind: Phenotype *is the observable appearance of an organism, while* genotype *is the hidden governing constitution. The genotype manifests itself through the physical attributes of the phenotype. An organism that is of a particular genotype is called a* genome.

—Kevin Kelly

This article originally appeared in *Evolution and Coadaptation in Basic Communities*, edited by Kauano, Connell, and Hidaka; published by University of Tokyo Press, 1987.

IN MANY RELIGIOUS CULTS AROUND THE world, ancestors are worshipped. And well they may be, for ancestors, not gods, hold the key to understanding why living things are the way that they are. Of all organisms born, the majority die before they come of age. Of the minority that become parents, an even smaller minority will have descendants alive 1,000 years hence. A tiny minority are the only ones that future generations will be able to call ancestors. This minority had what it takes to be successful. Every organism alive can look back at its ancestors and say the following: Not a single one of my ancestors was killed by a predator, or by a virus, or by a misjudged footstep on a precipice, or a mistimed handhold on a high tree branch, before begetting or bearing at least one child. Not a single one of my ancestors was too unattractive to find at least one copulation partner, or too selfish a parent to nurture at least one child through to adulthood. Thousands of my ancestors' contemporaries failed in all these respects, but not a single, solitary one of my ancestors failed.

Since all organisms alive inherit their genes from their ancestors, rather than from their ancestors' unsuccessful contemporaries, all organisms alive tend to possess successful genes. This is why organisms tend to inherit genes that build a well-designed machine, a machine that behaves as if it is striving to become an ancestor.

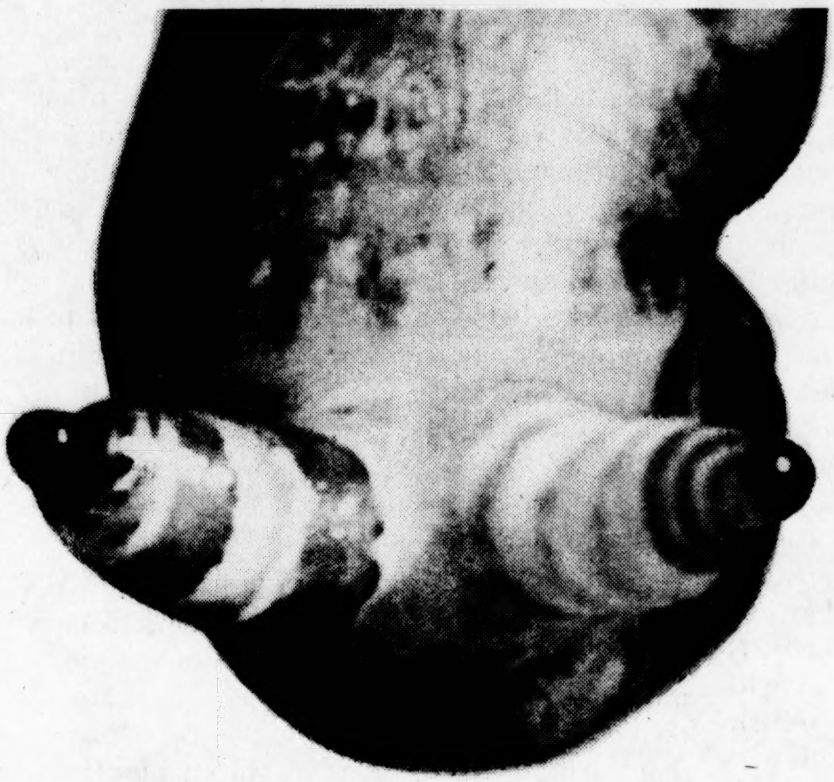
The rationale for this view of life can be seen only if we focus attention on the genes themselves (Williams, 1966; Dawkins, 1976). Genes are documentary information handed down, in the form of copies, from generation to generation. But genes are not only archival documents, passed like a family Bible from ancestor to descendant. They also exert a causal influence on each of the bodies in which they successively reside. They influence the development of arms and legs, of eyes and skins, brains and behavior patterns. Those genes that just happen to cause successive bodies to be more likely to die young, or to be unattractive to the opposite sex, or to fail in caring for children, are not the genes that pass through the net of natural selection into future generations of bodies. It follows that the animals that we see tend to be built by *good* genes: genes that are good at making bodies that, in turn, are good at passing those same genes on to future generations. It further follows that we can regard an individual animal as a machine for passing on the genes that it contains, a "survival machine" as I have put it.

The way that behavioral ecologists normally express this is to say that individual animals behave in such a way as to maximize their reproductive success. More precisely, it is referred to as their inclusive fitness (Hamilton, 1964). This doctrine has become orthodoxy. When a modern behavioral ecologist sees an animal doing behavior pattern A in situation P, his immediate reaction is to ask: "In what way is behavior pattern A good for the animal in situation P?" His colleagues may disagree with the answer he comes up with. Some of them may dispute the premise of the question, accusing him of being too "adaptationist," perhaps of neglecting a "developmental constraint," or of neglecting the power of neutral drift. But, following my book *The Extended Phenotype* (1982), I want to raise a very different kind of problem. I suspect that the animal we are watching may be being manipulated by some other animal or plant, perhaps behind the scenes.

The animal we are watching is moving under the power of its own muscles, of course, and its own brain is giving the orders. Since the brain and muscles grew under the influence of the animal's own genes we assume, as good neo-Darwinians, that the brain and muscles are working for the benefit of the animal's own genes. But what if there is some other animal lurking behind the scenes, pulling the puppet strings? Then, instead of asking "In what way is this animal benefiting from its behavior?" we should ask: "*Which* animal is this behavior benefiting?"

Parasites provide most of the examples we know about so far. Many flukes have a complicated life cycle, involving one or more intermediate hosts, before they finally infect their definitive host. For instance, flukes of the genus *Leucochloridium* have a snail as their intermediate host. From this they have to pass to a bird, and, in order for this to happen, their snail must be eaten by a bird, or at least the part of the snail containing the fluke. They could just sit back and wait for this to happen, but in fact they take active steps to make it happen. They burrow up into the tentacles of the snail, where they can be seen through the snail's skin, conspicuously pulsating. This makes the tentacles look to a bird like tempting morsels in their own right. Wickler (1985) suggests that they look like insects. Anyway, birds peck them off, and the fluke achieves the next stage in its life cycle.

What is more interesting from our point of view is that the flukes even manage to change the snails' behavior. The snails are normally negatively phototactic: they tend to avoid light, and therefore do not approach the tops of plants on which they feed. Infected snails change their behavior. They become positively phototactic, actively seeking light. This carries them up to the open tops of the plants, and makes them more likely to be seen by birds. Perhaps the fluke achieves this by interfering with the optic nerves of the snail: the eyes are, after all, in the tips of the tentacles into which the flukes have burrowed. From our point of view, it is sufficient that the parasites do change the behavior of the



Larousse Encyclopedia of the Animal World

Looking down on the head of a *Succinea* snail. Its tentacles are dilated and stained by the spores of the parasitic fluke *Lencochloridium*. The fluke spores are brightly colored to attract birds which mistake the tenecates for worms.

host, in such a way as to benefit the parasite, but not the host. If a behavioral ecologist watched the behavior of the snail, and asked: "In what way does its light-seeking behavior benefit the snail?" he would seek in vain for an answer. The truth is that some other animal, in this case a fluke, is manipulating the snail from behind the scenes. The behavioral ecologist would have done better to ask: "*Which* animal is this behavior benefiting?"

It is not just behavior that parasites manipulate. There is a protozoan parasite, *Nosema,* that infects beetle larvae. As far as the beetle larva is concerned, the purpose of its existence is to feed and grow until it is big enough to metamorphose into an adult beetle and reproduce. But the parasite has no interest in its host's *reproducing.* The parasite simply "wants" its host to go on growing and providing food for more and more of the parasite's descendants. It achieves this by a remarkable feat of biochemical manipulation. The parasites together (presumably they are a clone) succeed in synthesizing the juvenile hormone, or a close chemical analog of it. Juvenile hormone is the substance that insects normally synthesize to maintain larval growth and inhibit metamorphosis. Human experimenters have shown that, if you inject an insect larva with juvenile hormone, you can stop it metamorphosing. These *Nosema* parasites have "discovered" the same thing! They synthesize the juvenile hormone and secrete it into the beetle larva's body. Instead of metamorphosing, the larva continues to grow through as many as six extra larval moults, ending up as a giant larva more than twice the normal size.

In the case of the snail's phototaxis, it might have been possible to regard the change as an accidental byproduct, not as a true adaptation by the parasite. In the case of *Nosema,* it is hardly possible to maintain this. Juvenile hormone is not something that protozoa ordinarily have anything to do with. Achieving the feat of synthesizing a specific molecule like a hormone indicates true adaptation by natural selection over many generations.

Once again, the conclusion I want to draw concerns the kind of question that behavioral ecologists should ask. We are tempted to look at a giant beetle larva and ask: "How does this giantism benefit the insect?" Instead, we should ask: "*Who* is benefiting from the giantism?" The answer, once again, is not the animal itself, but a manipulator hidden behind the scenes.

These examples are all from the point of view of individual organisms. But, as stated at the outset, all adaptation should fundamentally be seen at the genetic level. If the animal we are watching is behaving for the benefit of a manipulator behind the scenes, we must express this at the genetic level. Just as, in normal adaptation, we say that an animal behaves so as to benefit the genes that it contains, so, in the case of these parasites, we must say that the host behaves in such a way as to benefit the parasite's genes. And the reason is the same. Just as, normally, an animal's development is influenced by the genes that it contains, so a parasitized beetle larva's development is influenced by the genes of the parasite. The conclusion of the doctrine of the "extended phenotype" is that a gene in one animal may have phenotypic expression in the body of another animal. It is this doctrine that I want to persuade you of, and I am doing so largely by talking about parasites.

The snail can be regarded as a vehicle exploited by a fluke. A beetle larva can be regarded as a vehicle exploited by a protozoan parasite. But the selfish gene view of life sees this as just a larger version of the normal relationship of a gene to the body in which it sits. A body is just a gene's vehicle for getting into the next generation, and hence into an indefinite series of future generations. A snail is just a fluke's way of getting into a sheep, and hence of getting its genes into the future.

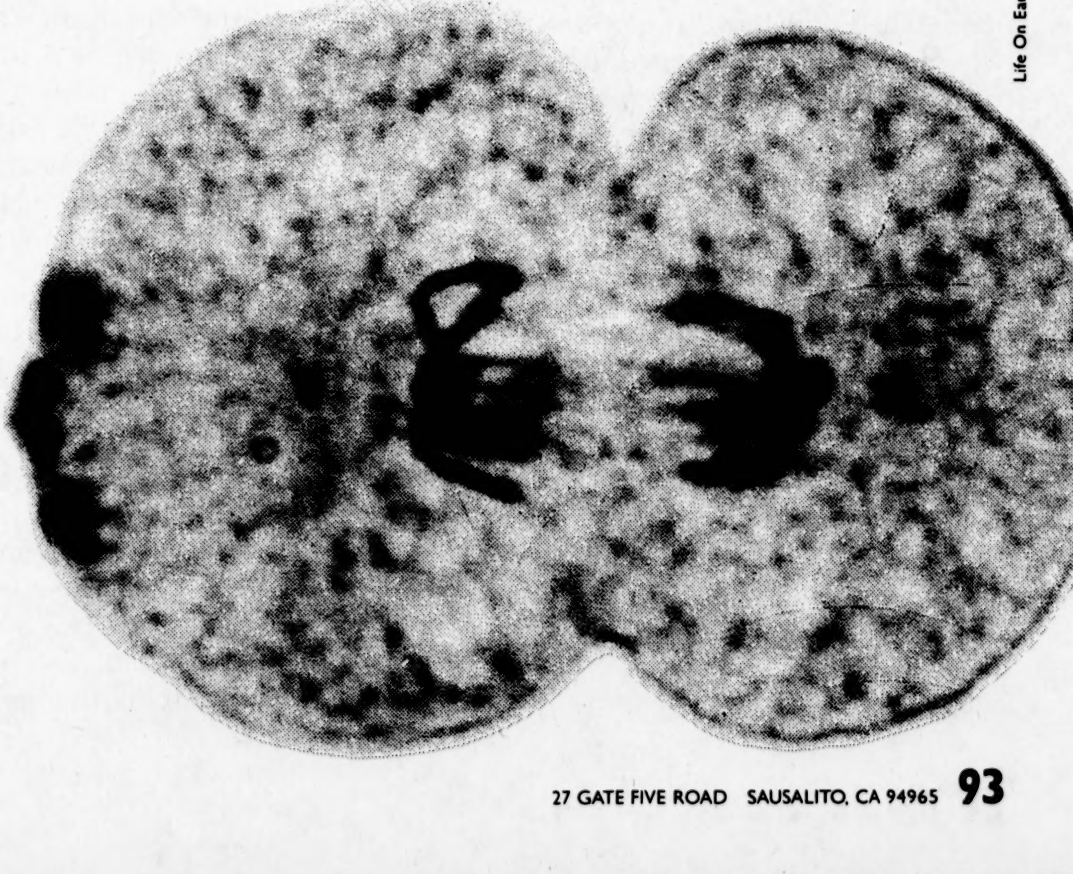
But why do we assume that the fluke genes work with a kind of group loyalty to one another, while the snail genes oppose them and work with a group loyalty to one another? Many people do not see this as a question that needs an answer at all. They see it as the starting assumption, that the whole of a body works together for the entire reproductive success of all of that body, in other words, for the propagation of all its genes.

But it is more fundamental for genes to work in their *own* interests. Under what circumstances might we expect genes within one genome to rebel, and not to pull together with one another for the common good? We would expect this if some genes had found a way of breaking out of the ordinary meiotic lottery involved in making gametes [the random division of chromosomes], and succeeded in manipulating their bodies into spreading them some other way. Suppose, for instance, that a gene succeeded in making its bodies *sneeze* them out, so that they could be breathed in by another body. Such a gene might well share with ordinary genes the same interest in preserving the individual body alive. But it would not share with ordinary genes the same interest in making that body have offspring, via sperm or eggs. This partial divergence of interests will tend to make the sneezed genes behave in a more detrimental, "parasitic" manner. Are there any examples of such genes? Well, if there were, by definition we would not call them members of the body's own genome. We might call them virus genes.

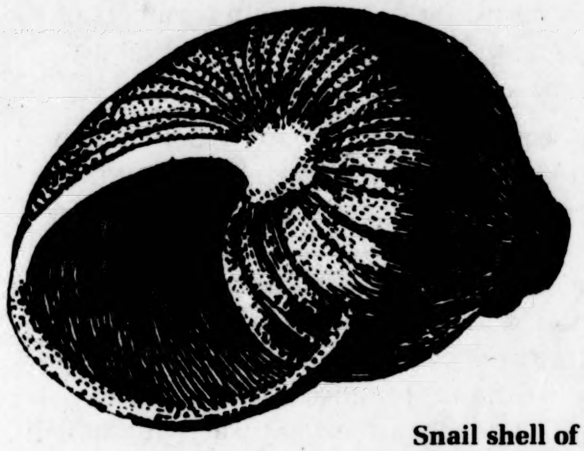
The only reason all genes are not rebels like this is that all the genes in one individual organism normally stand to gain from the propagation of the gametes of that organism. Rebelling is difficult, for reasons that in themselves require an explanation, and which have to do with the disciplined fairness of the meiotic lottery. Given that rebelling is difficult because of the way meiosis works, selfish genes can normally actually benefit themselves best by cooperating with others in the same body, in order to promote the reproduction of that body, as a coherent entity.

Briefly, I believe that this amicable state of affairs comes about in the following general way. Genes that can make use of one another's products tend to prosper in one another's presence. This sets up a climate in which genes that *cooperate* are favored. "Climate" means a climate provided by other genes. From any one gene's point of view, other genes can be regarded as part of the environment, in much the same way as the external temperature and humidity can be regarded as part of the environment. "Cooperate" just means work together, especially work together to make the whole genome behave as a single coherently purposeful unit. This in turn increases the unitariness and coherence of the body, which in turn increases the pressure for the genes to be even more cooperative, and specifically increases the pressure for all the genes to converge upon the same method of leaving the body. So we have a self-sustaining, self-reinforcing evolutionary trend towards large units of phenotypic power.

To go back to the example of


Life On Earth

Photomicrograph of a cell in mitosis, showing the formation of two daughter nuclei in asexual reproduction. In sexual reproduction, the chromosomes undergo meiosis; the daughter cells contain only half of the chromosome pairs.



Iconographic Encyclopedia of 1851

Snail shell of *Helix pomatia*. Construction is a cost/benefit tradeoff.

snails and flukes, we normally think of parasites as weakening their hosts. But there are some cases where, at least at first sight, they strengthen their hosts. Cases have been reported of snails parasitized by flukes having thicker and stronger shells than unparasitized snails. Does this mean that the snails actually derive some benefit from the flukes? In the sense of being better protected, the answer may well be yes, but it will not be a net benefit. When we consider benefits, we must not forget economic costs. It costs calcium and perhaps other resources to make a thick shell. We may be sure that the snail, and not the fluke, is bearing these costs. From the snail's point of view, a shell that is too thin is bad, for the obvious reason that it provides inadequate protection. But a shell that is too thick is also bad, because it consumes resources that could have been spent more profitably elsewhere in the economy of the snail, for instance, in making more eggs. Admittedly a super-thick shell presumably provides even better protection than a normal shell, but if, so to speak, the snails thought it worthwhile for this reason, they would have invested in it anyway! By making them have a thicker shell than they "want," the flukes are not doing the snails a favor, unless the flukes are, in some way, shouldering the economic cost of the extra thickness. We may be pretty sure that they are not.

Is there any reason for the flukes to "prefer" a thicker shell than the snail does? Yes, I think a plausible case can be made, precisely because the flukes are not shouldering the economic burden. From the snail's point of view, the weighing up of costs and benefits can be thought of as a trade-off between survival and reproduction. A thicker shell means that the snail's own life expectancy is increased, but the economic costs of the thicker shell are felt as reduced reproductive success. Natural selection presumably arrives at an optimum balance.

But from the fluke's point of view the optimum balance looks different. The fluke is also interested in the snail's survival, since its own survival is intimately bound up with the survival of its host (at least for a while). But the fluke has no specific interest in the reproductive success of its host. To be sure, it has a vague interest in the entire species of snails having reproductive success, so that there will be a new generation of snails to parsitize. But it has no specific interest in the reproductive success of its particular host, since the benefits of this to the next generation of flukes would be shared by all its rival flukes. As far as its particular host is concerned, it would be quite happy if that host were castrated. Indeed some parasites, as we know, do castrate their hosts, probably gaining benefits in the increased bodily growth of the host (Baudoin, 1975).

So, as far as snail shell thickness is concerned, there are two optima. The snail's optimum shell is thinner than the fluke's optimum. Switching, now, to gene language and the language of the extended phenotype, the snail phenotype is influenced not only by snail genes but also by fluke genes. These influences, to some extent, tug in opposite directions. The phenotype that we actually observe is probably a compromise between the two influences.

This is a slightly unfamiliar way of looking at life, so I will explain it in another way. Imagine three geneticists all doing research on the genetics of snail shell thickness. All three geneticists, in other words, are studying the same set of varying phenotypes. They differ with respect to the genes that they consider. One of the the three geneticists is a snail scientist. He studies the inheritance of shell thickness in pedigrees of snails. To him, the contribution of flukes to variations in the phenotype is strictly an environmental contribution to the variance. The second geneticist is a fluke geneticist. He studies the inheritance of host shell thickness in pedigrees of flukes. To him, the contribution of snail genes to variation in shell thickness is strictly an environmental contribution! I hope it is clear that both geneticists are practicing perfectly respectable genetics, albeit the fluke geneticist is a little unconventional. Yet each of them is relegating the genes studied by his colleague to the environmental category.

As you may have guessed, the resolution of this apparent paradox is achieved by the third geneticist. The third geneticist is an extended geneticist. He treats the variation in the shell phenotype as being under the joint influence of both snail genes and fluke genes. When you think about it, this is just what geneticists do all the time anyway, when they are studying genes within one genome. Geneticists are entirely accustomed to the idea that several genes influence the same phenotype. They normally think in terms of several genes of the "same" genome, but the whole point I am making is that there is nothing particularly special about the "same" genome. Fluke genes and snail genes can jointly influence the same phenotype, in just the same kind of way as snail genes and snail genes ordinarily interact with one another.

We have again reached our puzzle. Why do we assume that all the snail genes pull together as a team, while all the fluke genes pull together as a different team? The answer is not that there is anything qualitatively different about fluke genes and snail genes, some essence of snailiness or flukiness that pervades the substance of the genes. What, then, is the answer? The answer lies in the fact that the snail genes all share the same method of leaving the present snail body, and the fluke genes do not. The fluke genes in their turn all share the same method of leaving the present snail body, and the snail genes do not.

Why does the method of leaving the body matter so much? It matters because on it depends the series of events, in the future, from which the two sets of genes stand to gain. There is a partial overlap of interests. Both fluke genes and snail genes stand to gain from the snail's succeeding in finding food of the kind that best suits the snail's health. Both stand to gain from the snail's finding shelter from cold and other climatic hazards. Both, to a large extent at least, stand to gain from the snail's continuing to survive. But the two do not overlap in benefiting from the snail's reproducing. Snail genes that make the snail successful in finding a mate will be favored in the snail gene pool. Fluke genes that have the same effect on the snail will not be favored in the fluke gene pool.

In general, parasitologists should pay attention, above all other things, to the extent of overlap between methods of leaving the shared (host) body. Those parasites that put their gametes inside host gametes stand to gain from an almost identical set of future events to their host genes. They can therefore be expected to cooperate with their host as benign parasites or symbionts.

Some bacterial parasites of beetles not only live in the beetle's body. They also use the beetle's eggs as their transport into a new beetle. The genes of such a parasite therefore stand to gain from almost exactly the same set of future circumstances as the genes of their host. The two sets of genes, therefore, would be expected to pull together, for exactly the same reasons as all the genes of one organism pull together. It is irrelevant that some of them happen to be beetle genes while others happen to be bacterial genes. Both sets of genes are interested in the propagation of beetle eggs. Both sets of genes, therefore, are interested in making the beetle bodies successful in all departments of life, in both survival and reproduction. This is not true of the fluke genes and snail genes. The fluke genes care about snail survival, but not about snail reproduction. Therefore the cost/benefit calculations of snail genes and fluke genes come out differently. In the case of transovarial parasites like these bacteria, the cost/benefit calculations of host genes and parasite genes come out the same in all departments of life.

We now can take a radically unfamiliar view of any animal's "own" genes, and why they pull together for the good of all. The reason, quite simply, is that all expect to leave the present body by the same route as each other, by the

Female Colorado potato beetle, *Leptinutarsa decemlineata*, shortly after laying eggs.

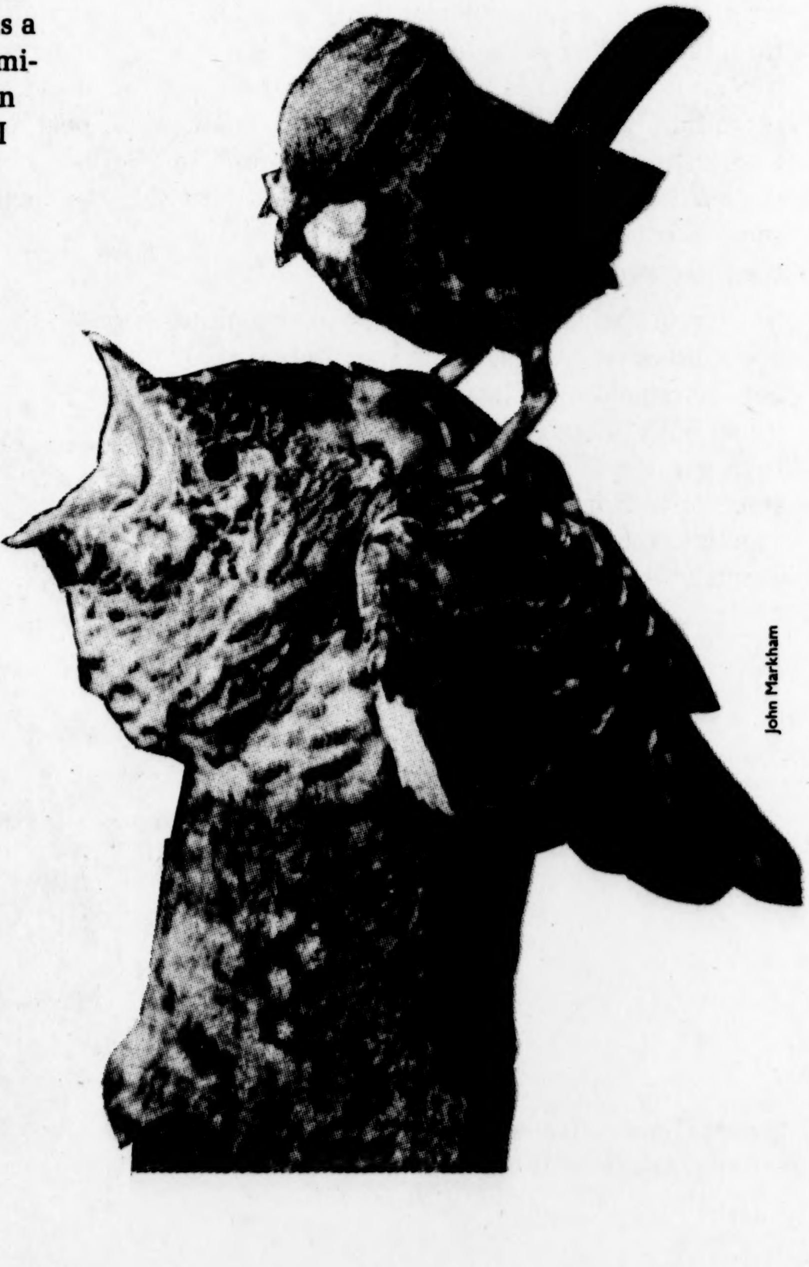
Noailles and Six

same sperm or eggs. To be sure, in sexually reproducing organisms, not all genes get into all gametes. Indeed, each gene has only a 50-percent chance of getting into any given gamete. But all have the same statistical chance of getting into each gamete. As long as rogue genes do not cheat, and increase these odds — which some genes, the so-called segregation distorters, actually do (Crow, 1979) — all the genes stand to gain from the same set of events in the future. Fundamentally the reason is that meiosis is largely a fair, unbiased lottery.

This opens the new question of *why* meiosis is largely a fair, unbiased lottery. This is not a question I will tackle here. For now, I shall just accept that it is, and note what follows from it. The conclusion is that the genes of any one organism pull together for just the same reason as the genes of a transovarially transmitted bacterium pull together with the genes of its host. Just as transovarially transmitted parasites are exceedingly "gentle" parasites — indeed not true parasites at all but mutualistic symbionts — so all the genes of a body can be regarded as gentle parasites of that body. The gentler the parasite, the more intimate the mutualism of a symbiotic relationship, and the less obvious it will be to us that it is a parasite at all. The parts will come to merge, until we cease to call the relationship parasitic or symbiotic, and think of the entire partnership as a single body. This is what has happened to mitochondria and other cell organelles, if Lynn Margulis's (1970) symbiotic theory is right. I want to go even further than Margulis, and regard all "normal" nuclear genes as symbiotic in the same kind of way as mitochondrial genes.

Parasites do not have to live inside their hosts. Cuckoos are perfectly good parasites, but they do not live inside their host's body, merely in its nest. They do not exploit the host's physiology directly, but indirectly via its behavior. But the principle is exactly the same, and the doctrine of the extended phenotype applies in the same kind of way.

It is easy to sympathize with the host foster parent when the cuckoo is at the egg stage. The eggs laid by a female of any one race closely resemble the eggs of the host species. The foster parent is fooled, in the same way as any victim of mimicry. We can sympathize because human egg collectors — for such disreputable creatures were once, I regret to say, common — have frequently been fooled. We find it much harder to sympathize with the foster parent when the cuckoo youngster has grown near to the point of fledging. It seems to us the height of absurdity when we see a picture of a tiny reed warbler, standing on the back of its monstrous foster child in order to reach its huge open gape and drop food into it (Hamilton and Orians, 1965). Surely any fool could see that the nestling cuckoo is not a reed warbler. It is one thing to be fooled by subtle egg mimicry, but who could be fooled by a fake child seven times the size of the real thing? Putting the problem in a less subjective and more Darwinian way, how can natural selection be so



John Markham

A young cuckoo (*Cuculus canorus*) being fed by an accentor (*Prunella modularis*). The cuckoo egg had hatched before the accentor's own eggs hatched, and while only one day old, pushed the rightful eggs out of their own nest.

efficient in perfecting the egg mimicry of the cuckoo, yet so inefficient in allowing grossly oversized nestlings to survive their foster parents' discrimination?

The problem is lessened by the following consideration. The cost of failure, from the point of view of the foster parent, is less at the egg stage of the cuckoo than at the nestling stage. A reed warbler who succeeds in detecting a cuckoo egg gains an entire breeding season. A reed warbler who succeeds in detecting a nearly fledged cuckoo has little to gain, since the season is nearly over anyway. But, even so, it seems hard to believe that a visual system sharp enough to detect the mimicry of cuckoo eggs could be "stupid" enough to be fooled by a cuckoo fledgling.

Perhaps "fooled" is the wrong word. A human male may be sexually aroused, even physiologically aroused, by a photograph or drawing of a female. Suppose a Martian ethologist observed this phenomenon. Would he say: "How silly to be fooled by this fake woman. Surely anyone can see that she is only a pattern of printing ink on paper, and only about a tenth of natural size." Men of course are not actually "fooled" by the picture. They do not really think it is a woman. They simply find themselves aroused by it in the same kind of way as they might be by a real woman. Perhaps something like this is true of the cuckoo's foster parent. There are many well-documented observations of adult birds, of many species, flying home with food for their own young, and being diverted by the chance sighting of a gaping cuckoo nestling in another bird's nest. They then feed the cuckoo in the other bird's nest, in apparent preference to their own young in their own nest. Perhaps the cuckoo nestling is, as Oskar Heinroth is reported to have said, a "vice" of its foster parents. He said that the parents behave like "addicts." Is the colored gape of the young cuckoo like an irresistible drug?

Following Dawkins and Krebs (1978) and Krebs and Dawkins (1984), I want to make the general case that animals may manipulate other animals with weapons that we can best understand if we think of metaphors like "drugs" and "hypnosis." Keith Nelson once gave a talk about bird song entitled: "Is bird song music? Well, then, is it language? Well, then, what is it?" I want to make the case that, at least in some cases, it may be akin to hypnotic persuasion, spellbinding oratory, hauntingly irresistible music. The poet Keats wrote, in his *Ode to a Nightingale,*

> My heart aches, and a drowsy numbness pains
> My sense, as though of hemlock I had drunk,
> Or emptied some dull opiate to the drains
> One minute past, and Lethe-wards had sunk.

What I am suggesting is that nightingale song, cuckoo gapes, and many pheromones perhaps are exerting an influence on their receivers' nervous systems which is irresistible in the same kind of way as a drug may be irresistible. Or as the electric currents of a neurophysiologist may be irresistible. A neurophysiologist can implant electrodes in carefully chosen parts of the brain of a cat or a chicken and, by passing current down them, manipulate the behavior of the animal like a puppeteer pulling strings. If the brain is vulnerable to such manipulation, should not natural selection, working on other animals, have perfected the power to manipulate? To be sure, animals cannot literally bore holes in one another's brains, cannot literally pass electric current in. But there are convenient holes already bored: eyes, ears, and noses. They provide ready-made channels into the deep parts of the brain and they are, in some senses, predisposed to be manipulated. A reed warbler's brain already has the predisposition to be attracted to the open gapes of its own young. The young cuckoo has only to tap into this ready-made channel into the brain, and it apparently is not all that difficult to go one better and evolve a supernormal stimulus. Natural selection would surely favor animals that succeed in manipulating the nervous systems of other animals in this kind of way.

The obvious question now stands out. Why do victims of manipulation stand for it? Just as natural selection would favor manipulators who discover and exploit portholes into the brains of their victims, so natural selection will favor those would-be victims who close off those very portholes. How can there be any long-term future in manipulation as a way of life? One possible answer is that there is not any long-term future. It could be that cuckoos can survive only by exploiting evolutionary time lags. Perhaps cuckoos can exploit any one host species for only a few centuries, before the host gene pool accumulates enough genes for resisting manipulation. Then selection in the cuckoo gene pool favors those who start exploiting a new species which is still, evolutionarily speaking, naive about the dangers of being manipulated. There is some direct evidence that this may be at least a part of the truth (N. B. Davies and M. de L. Brooke, in preparation). But I doubt if it is the whole truth. I think we also need to consider the theory of evolutionary arms races, and how they may end (Dawkins and Krebs, 1979).

An evolutionary arms race is a process of co-evolution in which advances on one side are matched by counter-advances on the other, which in turn provoke further advances on the first side, and so on. Arms races are common between predators and prey, and parasites and hosts, and are one of the principal forces driving towards progressive evolution of ever more complex and sophisticated biological armament and instrumentation (Dawkins, 1986). As so far described, there seems no obvious way for an arms race to end. But this is too simple. We have left economics out of the discussion. Arms races do not, in any case, make sense without economic considerations.

There are economic and other costs to each side in each advance in the arms race. For a deer to evolve faster running, for example, it must develop bigger muscles. This means spending more resources on muscle tissue, resources which could have been spent on, say, reproduction. There will be some optimum compromise between amount spent on leg muscles and amount spent on reproduction. Any individual deer that spends less than the optimum will be vulnerable to being eaten. But also, any individual deer that spends more than the optimum will be less reproductively successful than an individual spending the optimum amount. The overspender, to be sure, may live longer as an individual. But it will not pass so many genes on to future generations, so genes for overspending will not increase in the gene pool. If it were not for such economic considerations, all animals would run as fast as cheetahs and would be as clever as humans.

Now, what happens to this optimum if there is an arms race going on? If the predators increase their running speed, there will be a shift in the optimum balance within the deer gene pool. Individuals that previously would have been classed as overspenders now propagate more genes than individuals that previously would have been classified as optimal. So the deer population takes a step in the direction of greater average running speed. This in turn changes the optimum in the predator population, and so on.

But now, what if there are asymmetries in the economic calculations on the two sides of the arms race? Two thousand years ago, Aesop noted that the rabbit runs faster than the fox, because the rabbit is running for his life, while the fox is only running for his dinner. The cost of failure in running speed, for the fox, is merely a lost dinner. The cost of failure in running speed, for the rabbit, is a lost life. In the trade-off between spending resources on leg muscles and on reproduction, therefore, the optimum for the fox population could well come out very different from the optimum for the rabbit population.

We can apply this kind of economic thinking to the case of cuckoo nestlings manipulating their foster parents. The cost of failure to a young cuckoo is death. The cost of failure to a foster parent is the loss of part of one breeding season. To put it another way, the cuckoo is descended from a long line of ancestors, every single one of whom has succeeded in manipulating a foster parent. The foster parent is descended from a long line of ancestors, only a proportion of which ever met a cuckoo in their lives, and even that proportion had another chance to reproduce after failing in that one year. Maybe the arms race between cuckoos and reed warblers has ended in a kind of stable compromise.

If there are economic costs to a reed warbler in resisting manipulation by cuckoos, it is even possible that natural selection among reed warblers favors complete capitulation. If cuckoos, for instance, were rare, then any individual reed warbler that was prepared, genetically speaking, to pay the cost of resistance, might actually be less successful than a rival individual that made no attempt whatever to resist cuckoos. Total nondiscrimination could be, for economic reasons, a better policy than costly discrimination, even though nondiscrimination carries the risk of parasitization.

If animals can manipulate other animals, and if the economics of arms races leads to stable equilibria in which the victims of manipulation acquiesce in being manipulated, we once again arrive at the same conclusion as before. When a behavioral ecologist looks at some feature of an animal's behavior, or anatomy, he should not necessarily ask, "How does this feature benefit the animal?" Instead, he should ask, "Which animal is this feature benefiting?" Whereas, before, the hidden manipulator behind the scenes was assumed to be a parasite inside the host's body, with direct access to the host's physiology and biochemistry, we have now extended our view to include manipulators outside the victim's body. The manipulator can even be a long way away,

Lamarck

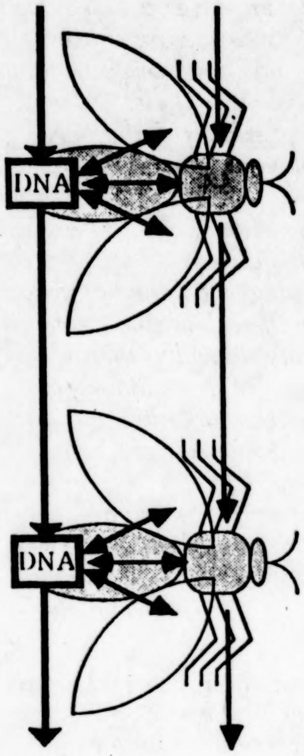


Fig. 1

Weismann

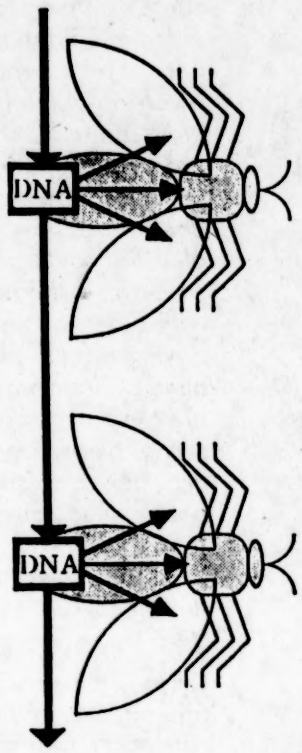


Fig. 2

Extended Phenotype

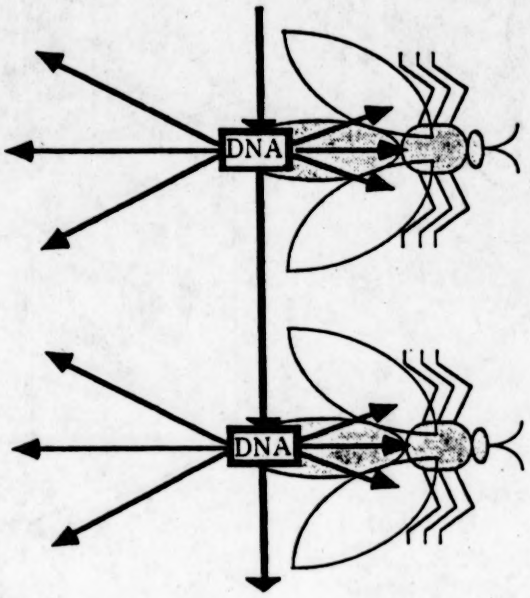


Fig. 3

manipulating its victim by sound, or by chemical means.

I can summarize the extended phenotype view of life by contrasting it with two others in the form of **diagrams.** The two others can conveniently be labeled with the names of the great biologists who advocated them, Lamarck and Weismann. In the Lamarckian view of life (actually Lamark simply adopted a prevailing view of his contemporaries and predecessors, but his name is conveniently used as a label), bodies pass on their attributes to descendant bodies **(fig. 1)**. Hence new characteristics acquired during the body's life can be passed on. The Lamarckian view was replaced by the Weismannian view, according to which the germ-lines (we should now say the genes) are passed down the generations, influencing bodies as a side issue **(fig. 2)**. A very important side issue, it has to be hastily said, since the survival or nonsurvival of the genes largely depends upon their effects upon bodies. The extended phenotype view of life **(fig. 3)** is an extension of the Weismannian view. Indeed, I would maintain that it takes Weismannism to its logical conclusion. There is still an immortal germ-line, and genes still survive or perish by virtue of their phenotypic consequences. But those phenotypic consequences are no longer limited to the body in which the genes are sitting. Genetic influences reach out beyond the body of the individual organism and affect the world outside, both the inanimate world and other living organisms. Coevolution, and the interaction between organisms, is best seen as an interlocking web of extended phenotypes. ■

LITERATURE CITED

Baudoin, M. (1975). Host castration as a parasitic strategy. *Evolution.*, **29**: 335-352.

Crow, J. F. (1979). Genes that violate Mendel's rules. *Scientif. Am.*, **240 (2)**: 104-113.

Dawkins, R. (1976). *The Selfish Gene.* Oxford University Press, Oxford.

Dawkins, R. (1982). *The Extended Phenotype.* W. H. Freeman, San Francisco.

Dawkins, R. (1986). *The Blind Watchmaker.* Longman, London.

Dawkins, R. and J. R. Krebs (1978). Animal signals: information or manipulation? *In* Krebs, J. R. and N. B. Davies (eds.), *Behavioural Ecology: An evolutionary approach*, pp. 282-309. Blackwell Scientific Publications, Oxford.

Dawkins, R. and J. R. Krebs (1979). Arms races between and within species. *Proc. Roy. Soc. Lond. B.*, **205**: 489-511.

Hamilton, W. D. (1964). The genetical evolution of social behaviour. I. *J. Theor. Biol.*, **7**: 1-16.

Hamilton, W. J. and G. H. Orians (1965). Evolution of brood parasitism in altricial birds. *Condor,* **67**: 361-382.

Krebs, J. R. and R. Dawkins (1984). Animal signals: mind-reading and manipulation. *In* Krebs, J. R. and N. B. Davies (eds.), *Behavioural Ecology: An evolutionary approach*, pp. 380-402. Second Edition. Blackwell Scientific Publications, Oxford.

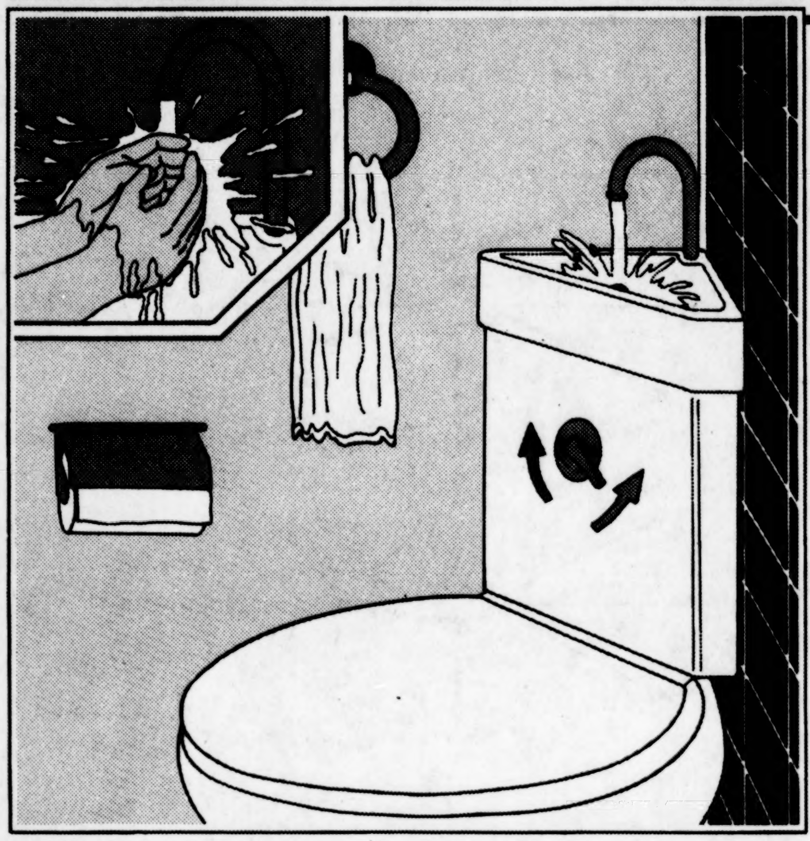
Margulis, L. (1970). *Origin of Eukaryotic Cells.* Yale University Press, New Haven.

Wickler, W. (1968). *Mimicry.* Weidenfeld & Nicolson, London.

Williams, G. C. (1966). *Adaptation and Natural Selection.* Princeton University Press, Princeton.

Hand-washing water recycled for the next flush

COMBINATION TOILET-SINK



- Turn the handle to the left for a full-tank flush and to the right for a half-tank flush. Then rinse your hands with the water that comes out to replenish the tank. Saves space, simplifies plumbing . . . and eliminates waste. Invented in 1956, this system costs less than conventional toilets (¥50,000–110,000) and comes in eight- and sixteen-liter sizes and a rainbow of colors. Also available for bathrooms are artificial flushing-sound generators that people can use to cover up the sound of what they're doing without wasting water. One such model is compactly designed to be carried by women in their purses for use outside the home.

283 Useful Ideas from Japan

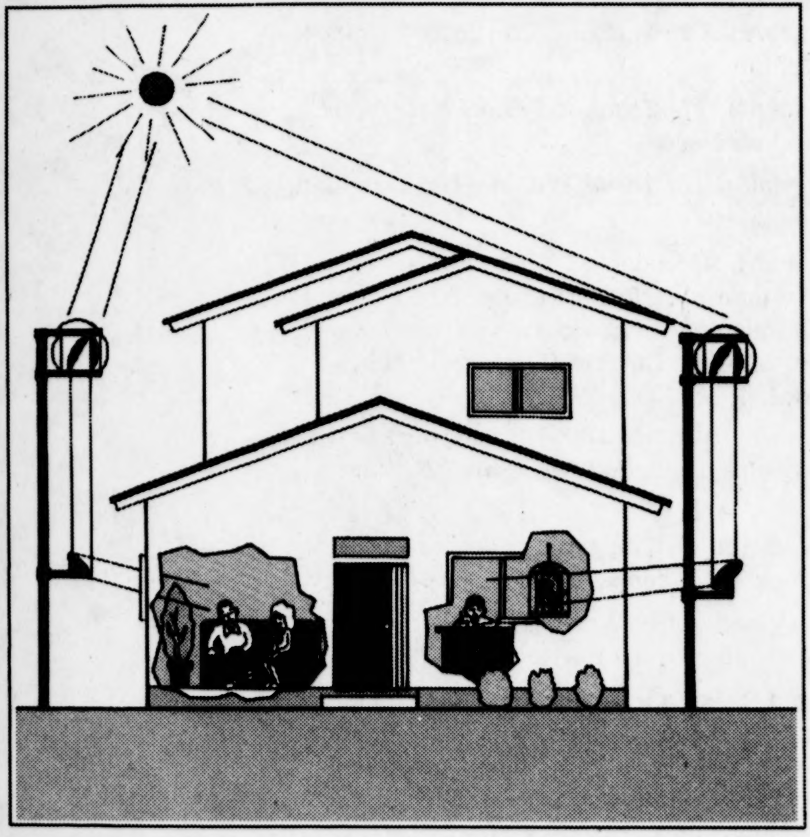
There's nothing like a parallel universe to spark one's jaded imagination. Modern Japanese march to the beat of an alternative modernity, and have developed a version of the future all their own. Theirs is a way of life suited to cramped living spaces — the only promising culture that will thrive in a space station, says Paul Hawken. Otherwise, Japanese novelty often doesn't translate well. However, here are 283 examples that could take root in the global culture. They range from the off-beat (vending-machine hot cocoa with 2 percent chili sauce) to the admirable (textured paving blocks imbedded in city sidewalks to guide blind pedestrians). While some of these innovations are the ploys of clever Japanese marketing and packaging, all of them ARE being done. A useful appendix provides addresses and phone numbers for any importer or social entrepreneur eager to contact the source. Useful or not, these ideas add up to the best thumbnail sketch of contemporary Japanese culture that I know of. —Kevin Kelly

●

Tokyo is full of restaurants, and many have taken to offering special promotions in the hope of attracting customers. One restaurant catering to students in Kanda, Tokyo, offers a ¥50 refund if you eat all your food. They have a sign on the wall: "If you want smaller portions, speak up!"

Bringing natural sunlight into dark buildings

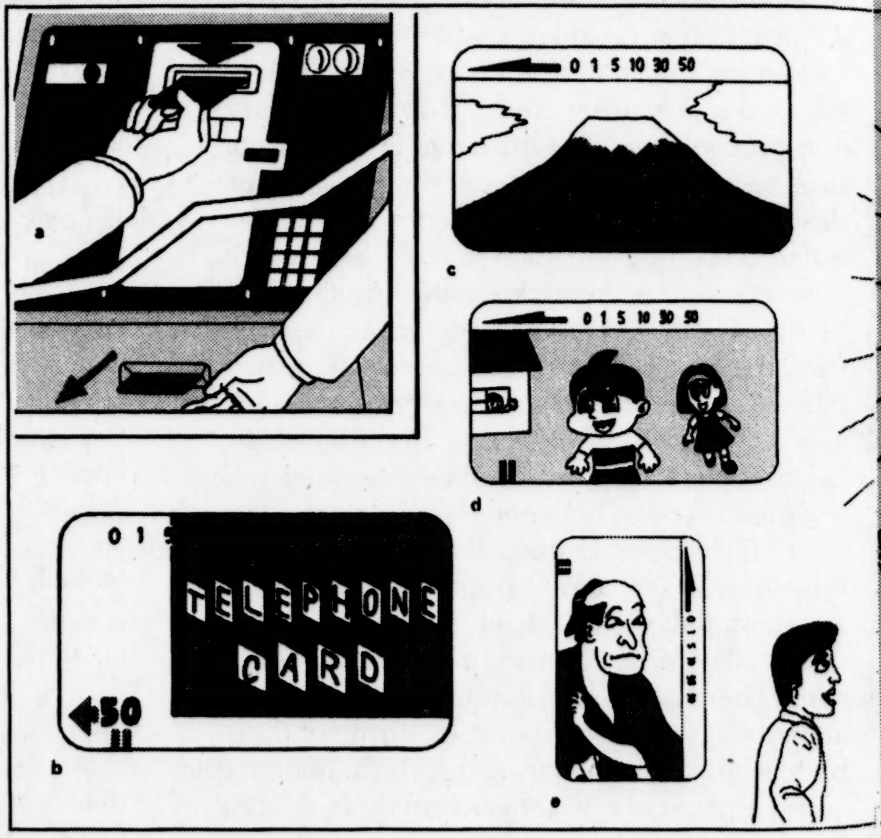
SENSOR-CONTROLLED MIRRORS



- In densely populated areas sunlight is at a premium. A sophisticated mirror system called Natulight, used in shopping centers, department stores, and residences to funnel in sunlight, makes interior spaces more comfortable and appealing. Sensors cause the mirrors to rotate as the sun moves across the sky. The mirrors have a high-reflection finish so that 70 to 90 percent of the light is saved. As an option you can control the amount of ultraviolet and infrared to help regulate heating in summer and winter. At night and when it's raining, the sensors shut down to save money. A home system costs ¥1.5–3 million, plus 20 percent to install.

A new advertising medium: collect, trade, or make your own

PREPAID DESIGNER TELEPHONE CARDS

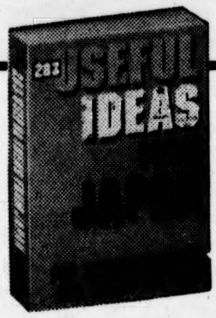


- To phone companies, prepaid phone cards represent money received in advance for services not yet rendered. The more cards sold, and the fewer cards used, the higher the profit to the phone company. That's the idea, and the result is a whole new entrepreneurial industry in Japan.

a Prepaid cards come in denominations of ¥500, ¥1,000, and ¥3,000. Insert the card into a public phone to make a call. When you hang up, the card returns with holes punched to show how much time remains.

b The basic card with fifty units showing. Each unit equals one local call.

c NTT (the phone company) issues twenty new designs each month.



283 Useful Ideas from Japan
Leonard Koren
1988; 174 pp.
$8.95
($10.95 postpaid) from:
Chronicle Books
275 5th Street
San Francisco, CA 94103
415/777-7240
or Whole Earth Access

•

Here's an idea American banks should rob. When you enter a Japanese bank, you hand your money and forms to a receptionist, who passes them to a row of clerks for processing. Instead of standing in line while you wait, you can then sit in a comfortable chair, watch TV, sip complimentary tea, or read a magazine. The clerk calls your name when your transaction is complete. No more jangled nerves!

•

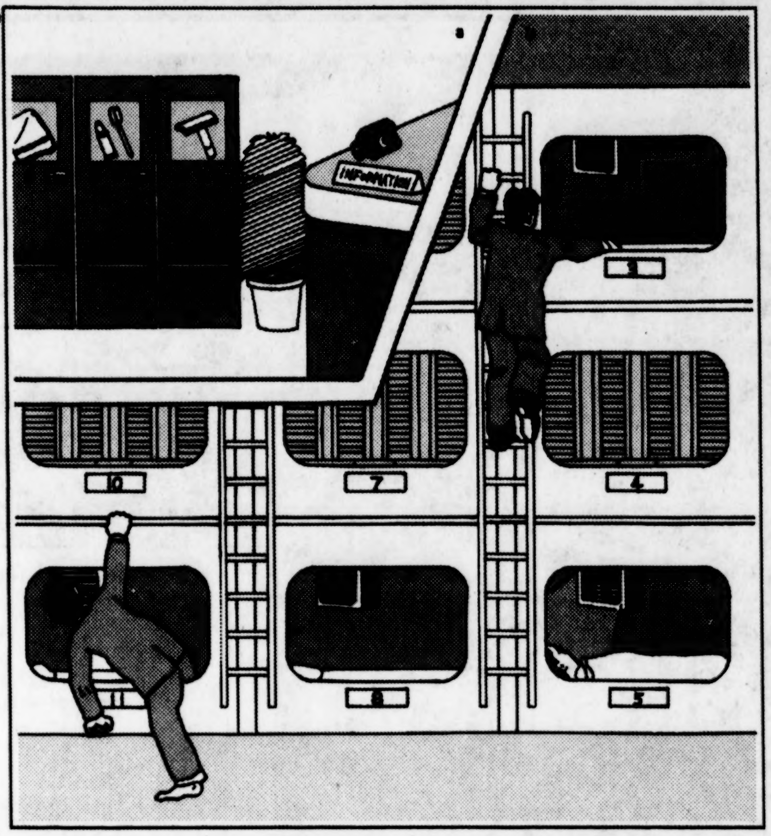
Unique TV shows:

★ A desperate wife comes in with a story of how her husband left her. Viewers call in with tips. The TV crew stalks the man, finds him, and confronts him on camera.

★ Crazy sports event show: eating live frogs, sewing a button onto your tongue, drinking milk through your nose and expelling it from your eyes.

Clean, safe places for people who just need a place to sleep

CAPSULE HOTELS



a Working late at the office? Trains on strike? Miss the last bus home? Can't face the long commute only to have to wake up early the next morning and do the same thing all over again? Stay in a capsule hotel: basic amenities in a prefab, Pullman-style sleeping compartment, at a price 20 to 50 percent less than a normal business hotel. For maximum convenience, the front desk is staffed twenty-four hours a day, and razors, soap, snacks, and a host of other supplies are available in vending machines in the lobby. Check in after 5 P.M., check out before 9 A.M. These stripped-down sleepers generally are located near train and subway stations and

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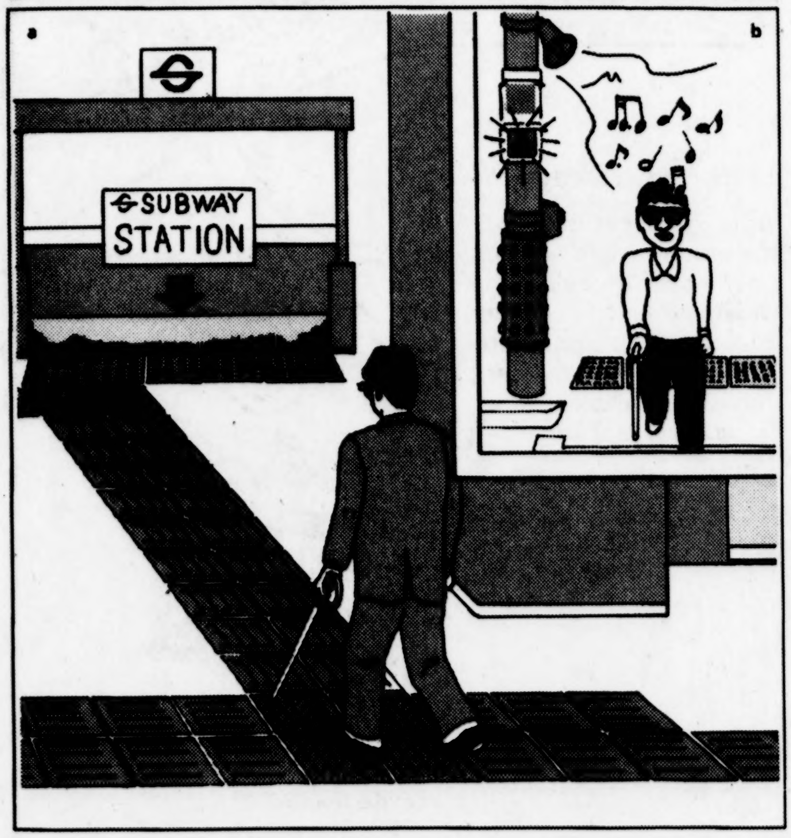
Textured pavement and sound-synchronized traffic lights

MAKING CITIES SAFER FOR THE BLIND

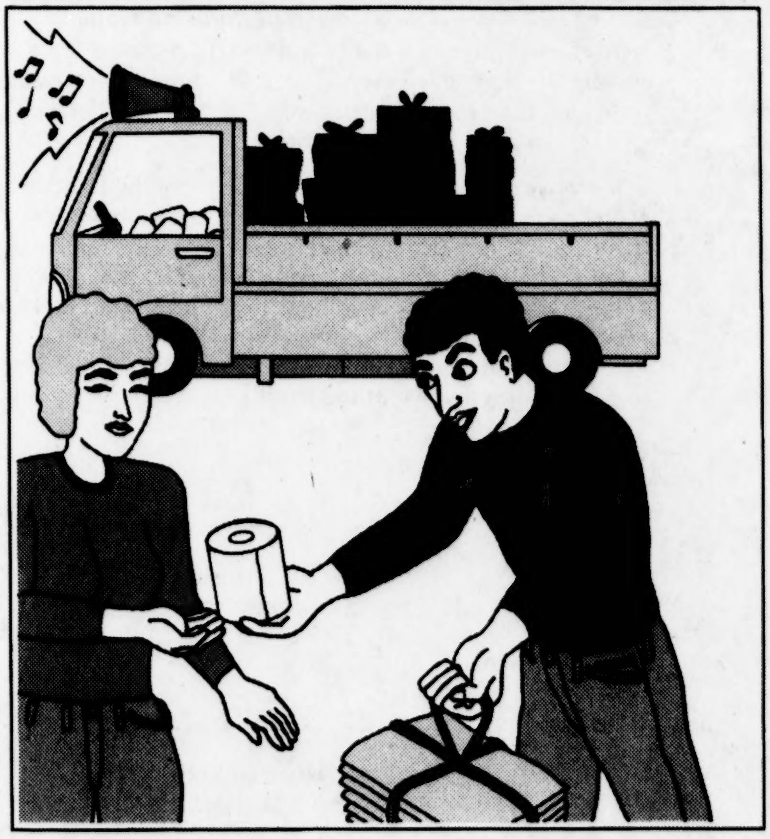


a Throughout Japanese cities, specially textured paving blocks embedded in sidewalks and concrete guide blind pedestrians along a safe route. A change in texture—to lateral bars, lengthwise bars, knobs, etc.—indicates a change in direction, stairs, or obstructions ahead. The blocks are most conspicuous at train stations, where they mark the edge of the platform—helps sighted people, too.

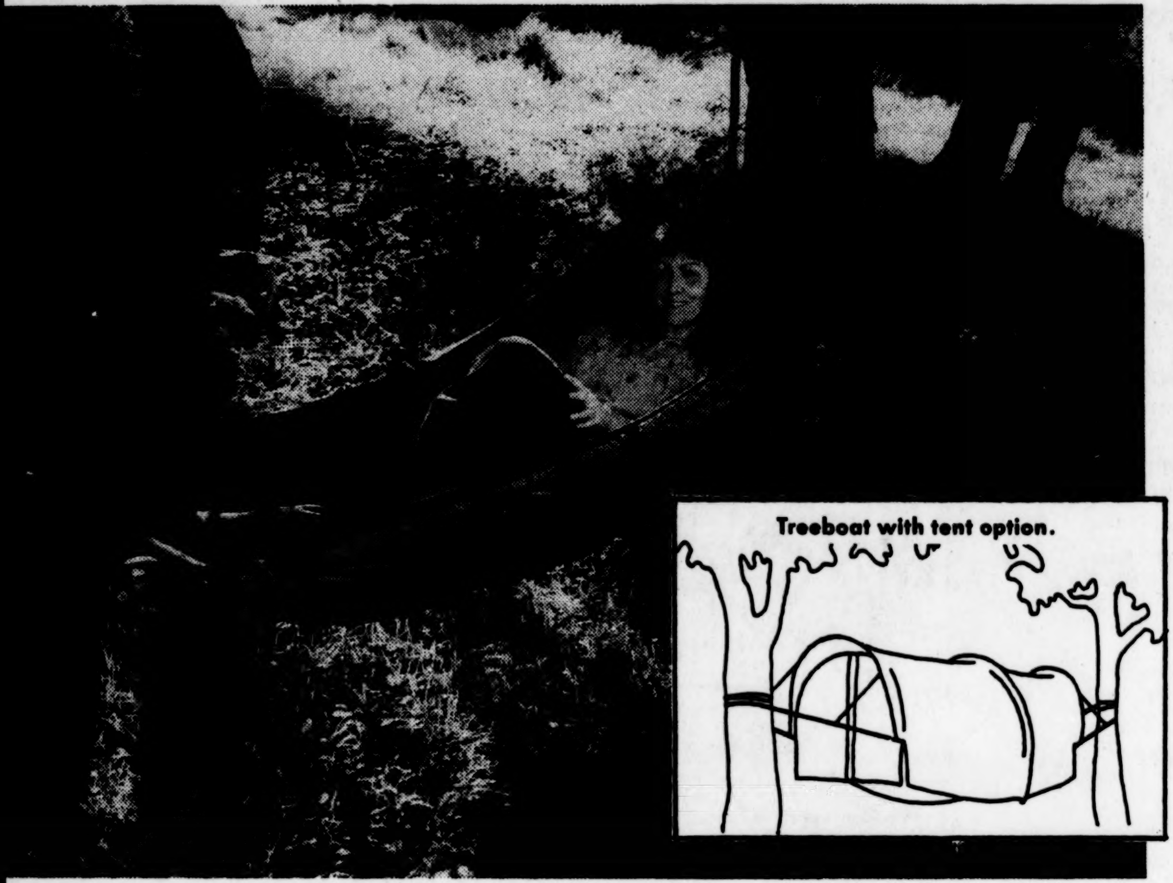
b At major intersections, pushing a button will cause music to play out of loudspeakers at either end of the crosswalk when the light turns green. This helps the blind hone in on their destination, and also tells them when it's safe to cross.

Trade old newspapers and magazines for new toilet paper

PAPER-RECYCLING TRUCK



• A familiar sound in Japanese neighborhoods is the taped announcement and jingle of the *chirigami kokan* truck, which alerts everyone to bring out their old newspapers, magazines, cardboard boxes, and fabrics for disposal. In exchange the driver gives out rolls of toilet paper (or tissue) according to the weight of the material he collects. Profitability of this venture is tied to the current price of paper, so the number of recyclers is always changing. Japanese have indicated they would support recycling even without the free toilet paper, because it eliminates burning costs (paid by taxes) and helps reduce air pollution.


Treeboat with tent option.

Treeboat

The Treeboat is a big, comfortable hammock you can sleep in without requiring the services of a chiropractor the next day. It sets up easily — no knots — anywhere there are trees close enough together. You can choose your altitude (the inventors have slung it near the tops of trees for a rather different take on forest life!). No flat, dry, cleared groundspace needed, of course. What about rain and bugs? Add the optional tent top or mosquito net cover. Can you bring a friend? For frolic, yes. For the night, it's best to be single. No question of strength though — it's built like a tank. (Not to be confused with "jungle hammocks," which are instruments of the devil.) —J. Baldwin

Treeboat: $69 plus shipping (UPS). Brochure **free** from New Tribe, 3435 Army Street #330, San Francisco, CA 94110; 415/647-0430.

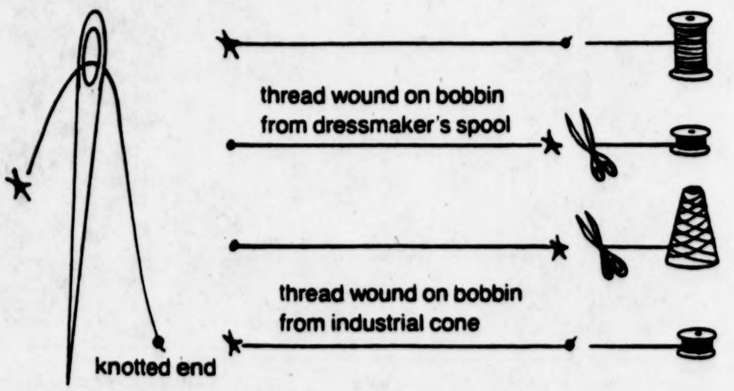
Sew & Repair Your Outdoor Gear

Can you enjoy high-performance trail gear without the shocking price thereof? Yas indeed — if you can sew. This sassy book shows you the tricks of handling modern materials (some of the new fabrics can slither around like they had pedipalps) and where to get them. The copious illustrations show clearly how to perform intimidating repairs, and there are easily understood patterns for a variety of commonly coveted gear. It's a pleasure to see a difficult subject covered so well. —J. Baldwin

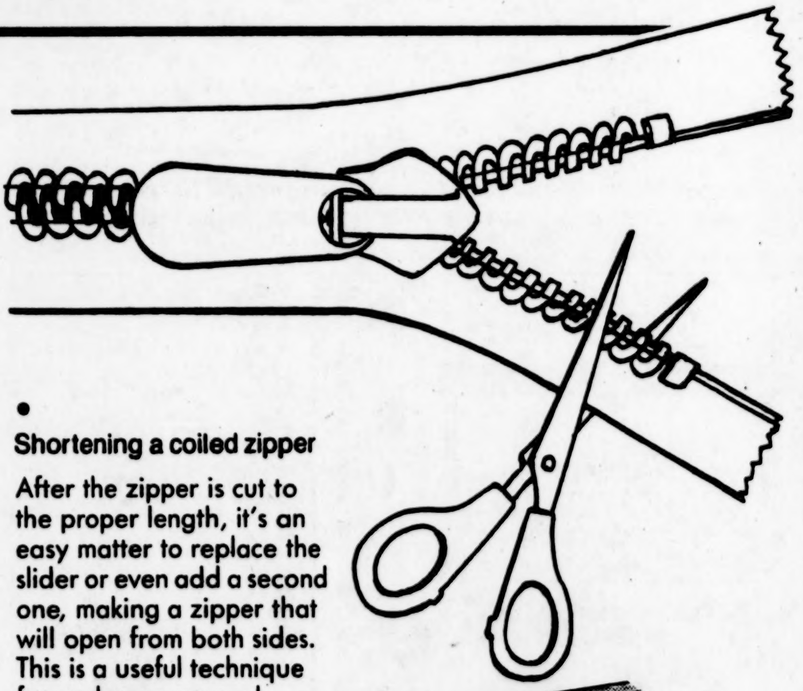
•

Some of your patching will need to be done by hand. Many people put off hand mending because they are frustrated by thread that kinks and knots as they pull it through the fabric. The knotting is caused by the twist of the thread: Industrial cones have left twist and normal spools have right twist. To avoid the problem, use the following chart to choose the proper end of the thread to put through the eye of the needle.

cutting and threading to avoid kinks



Never use a waterproof fabric to make a patch for another waterproof fabric; water can seep between the two layers and become trapped. Fully breathable materials can have patches of waterproof fabric, but waterproof fabrics should be patched with strong, uncoated material. Garment-weight breathable waterproof fabrics can be patched with either a heavier weight of breathable waterproof material such as Taslan® Gore-Tex®, or with uncoated packcloth.



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Shortening a coiled zipper

After the zipper is cut to the proper length, it's an easy matter to replace the slider or even add a second one, making a zipper that will open from both sides. This is a useful technique for underarm or pack zippers.

Sew & Repair Your Outdoor Gear

Louise Sumner
1988; 160 pp.

$14.95

postpaid from:
The Mountaineers Books
306 2nd Avenue W.
Seattle, WA 98119
800/553-4453
or Whole Earth Access

Katadyn Pocket Water Filter

As a career USDI — National Park Service ranger, I get hundreds of questions from visitors and friends about buying water filters. There is a lot of ignorance out there about water quality. Folktales still abound about how an open stream supposedly cleans itself every 100 feet, or is it 100 yards?. Well-meaning land managing agencies often unknowingly pass out misinformation with the best of intentions. Increasingly, folks from cities with upgraded water quality have less and less immunity to organisms in rural and wilderness areas. In many cases human wastes get directly into streams and the next person comes along and naively drinks the clean-looking water.

The Katadyn Pocket Filter can be used in clear or turbid water. Its 0.2 micron (um) ceramic filter element with silver-quartz protects against bacteria such as salmonella, shigella *and* vibra *(cholera) (0.5 um). It eliminates the need for boiling water, and the potentially toxic use and bad taste of chlorine or iodine. Other hand-held water filters require replacement after a few hundred quarts and have a larger pore size (0.4 um+). My Katadyn has served me and groups I've traveled with faithfully, as long as it is rinsed well when using turbid water and dried out every once in a while to eliminate mold on the outside of the filter. Easy pumping [only if you brace it against something —J. Baldwin] produces about a quart in a minute.*

Katadyn makes a variety of other water filters: siphoning, household tap, and commercial units for ships and airplanes. As a backcountry ranger I've enjoyed the convenience of the TRK Drip model where I had to haul water from a stream or lake. Using a Katadyn is much cheaper in time, effort and health than going through the unpleasant, minimum-$200 medical treatment for giardia.

—Scott M. Kruse

Katadyn Pocket Water Filter: $189.95 postpaid from REI, P. O. Box 88125, Seattle, WA 98138; 800/426-4840.

Backpacking and Camping in the Developing World

I know a man who drove a motor scooter from Capetown to Tunis. He brewed his own fuel on the road (out of fermented fruit). He drove through villages where no white man or any other traveler had ever been seen, yet he managed to get food and lodging "after asking around a bit." How do people DO these things? It's so easy in the telling, and often so hairy in the doing. How do you get ready? What do you need to know? Can a woman do it safely alone? How do you get a cheap airline ticket in southeast Asia? This book doesn't have any scooter-fuel recipes, but it sure gets at everything else. I'd call it a primer, not only in the sense that it's a good place to start your trip preparation but also that it's likely to prime you to get off your tail and hit the road.

—J. Baldwin

•

Many Westerners plan visits to the developing world's backcountry with visions of pristine wilderness in mind. At the outset of their journeys, however, they quickly learn that pristine wilderness no longer exists in the developing world except in the harshest deserts, the thickest jungles and the highest mountains. All the other land is inhabited by fascinating, friendly, warm-hearted people — but by people nonetheless.

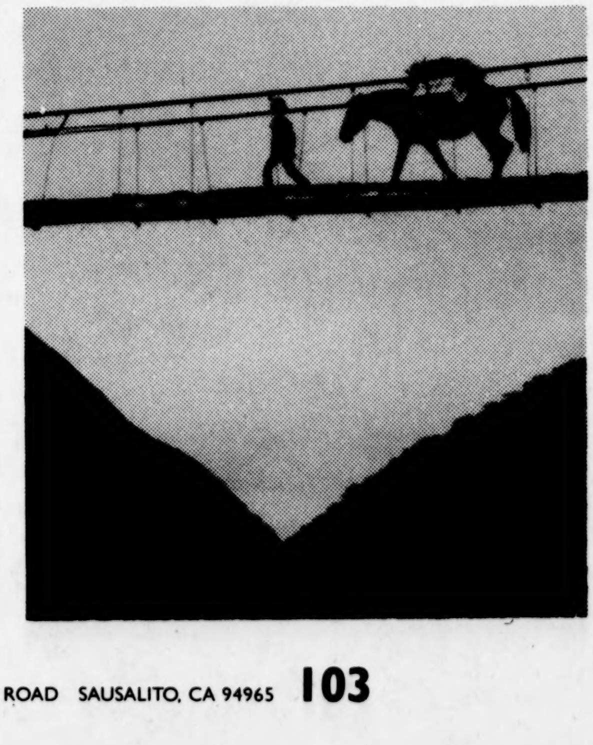
If you desire only to commune with nature in the developing world's backcountry, be forewarned. The only way to do so is to pass through backcountry areas inhabited by locals to reach the few parts of the developing world still relatively uninhabited.

•

With hot drinks, there is always the chance that the water wasn't boiled for 10 minutes, and that a giardia cyst managed to survive. But you've got to draw the line somewhere. However, do note, where possible, how the dishes are washed. If they are being washed in cold water, pull out your own plastic mug and plate and ask that the restaurateur serve you in them, or wipe the cup and plate dry.

You may find such behavior embarrassing at first, but as time goes on you'll realize that your language, clothing and manners are all so unusual to those who are serving you that asking to use your own cup, drinking from your own bottle of water or passing up uncooked foods is not considered rude. Rather, your actions will simply be accepted as another facet of your uniqueness.

Pony men in the Indian Himalayas will use their mountain ponies to carry your gear, will prepare tea for you at day's end, and, if you wish, will prepare your meals, too — all for a fraction of the cost of joining an organized group trek.



Backpacking and Camping in the Developing World
Scott Graham
1988; 143 pp.
$11.95
postpaid from:
Wilderness Press
2440 Bancroft Way
Berkeley, CA 94704
415/843-8080
or Whole Earth Access

Backpacking and Camping in the Developing World

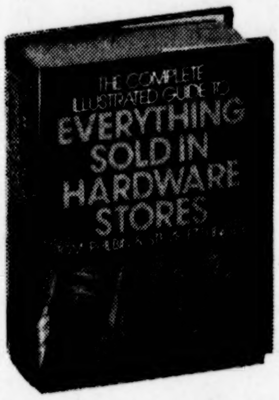
Everything Sold In Hardware Stores

I've got a friend who's spent two decades as a professional builder & remodeler, & as far as I'm concerned he knows everything on the topic. When I'm stumped on a project he's my main source of advice. That advice breaks down into two categories: How To and What, the What being the materials needed to perform the How To.

When it comes to the What, here's a book that's almost as good as my friend who knows everything. It covers items from flush valve balls (toilets) and dowel pins (woodworking) to corner bead (sheetrock) & wire nuts (electrical), not to mention lumber, roofing, power tools & paint. Whether you're a beginner struggling with home maintenance and tired of asking for "thingamajigs" at the hardware store or an old pro filling in gaps, here's a well-designed, informative read, a book that knows everything. —Dick Fugett

The Complete Illustrated Guide to Everything Sold In Hardware Stores
Tom Philbin
and Steve Ettlinger
1988; 432 pp.

$24.95
($26.45 postpaid) from:
Macmillan Publishing Co.
Front & Brown Streets
Riverside, NJ 08075-1197
800/257-8247
or Whole Earth Access


THE COMPLETE ILLUSTRATED GUIDE TO
EVERYTHING SOLD IN HARDWARE STORES

ROOFING FELTS

ALSO KNOWN AS: Saturated felts, perforated felts, base sheet, tar paper

DESCRIPTION: Dry felt impregnated with an asphalt saturant and perforated to avoid trapping air. Different weights are available, the most common being No. 30, which weighs about 30 pounds per square. Comes in squares about 30" wide and in rolls.

USE: General patching of flat roofs, but mainly constructing bottom layers of a built-up roof. It is placed over the sheathing paper, which simply protects the basic roof from the asphalt in the felts.

USE TIPS: Felt can be installed with a staple gun or, for patches, plenty of roofing nails.

DIE

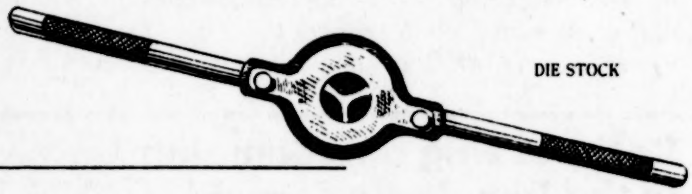
ALSO KNOWN AS: Threading die

DESCRIPTION: Small round piece of hardened steel, resembling a cookie cutter, containing several half-holes and sharped internal teeth. Held in a two-handed handle, called a *die stock,* with a circle in the center for holding dies.

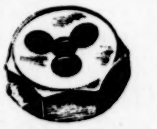
USE: Cutting threads on the outside of a metal rod.

TYPES: *Adjustable*
Solid (most common)
Hexagonal (can be used with a wrench instead of a handle)

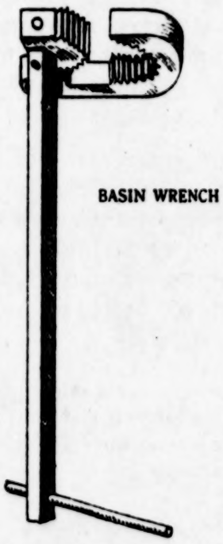
USE TIPS: Make sure everything is perfectly aligned.



DIE STOCK



DIE



BASIN WRENCH

BASIN WRENCH

ALSO KNOWN AS: Faucet wrench, faucet nut wrench, crowfoot faucet wrench

DESCRIPTION: Bar with a rod through one end and knurled hook on the other.

USE: Essential, unique tool for loosening and tightening the nuts that hold a faucet in place.

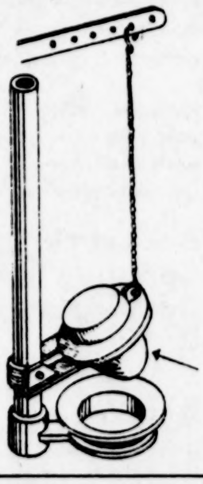
FLUSH VALVE BALL

ALSO KNOWN AS: Tank ball, flush ball, valve seat ball

DESCRIPTION: Rubber ball-like device, suspended by lift rods or wire, which fits into flush valve seat.

USE: Controls water flow from bottom of tank. When it is lifted the tank water rushes out and flushing is started.

BUYING TIPS: The traditional flush valve ball design is frequently the culprit when a tank leaks. It is easily replaced by a new design called a "flapper" or "flapper ball." The flapper ball is connected to the float arm by a chain, and one size fits all toilets—2½". Very easy to install; just be sure to adjust the height until it seals properly. It eliminates the easily jammed wires or rods, guide or guide arm, and the cursed tank ball.



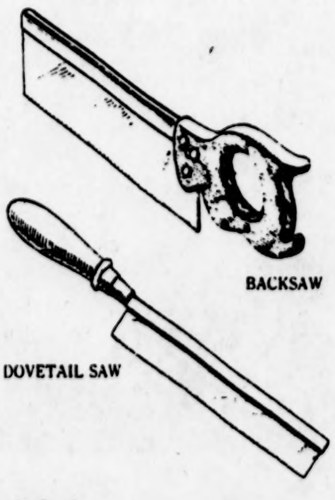
FLAPPER

BACKSAW

ALSO KNOWN AS: Miter-box saw

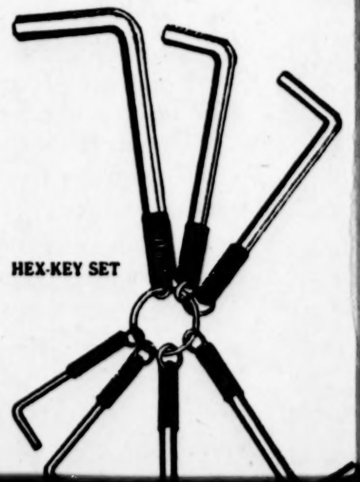
DESCRIPTION: Rectangular, fine-toothed saw with a stiff reenforcement piece along the top, or back. Smaller versions of the backsaw, the smallest having handles in line with the blade, are for very fine joint work and include the *dovetail* saw, *cabinet* saw, *blitz* saw, *gent's* saw, *slotting* saw, *razor-back saw,* and *tenon* saw. The reinforced back gives greater control for fine cutting.

USE: For making very accurate cuts, such as for molding. Also for use in a **miter box (below).**



BACKSAW

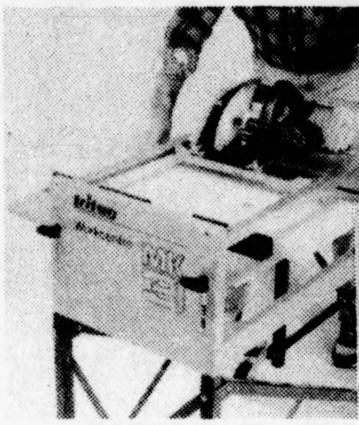
DOVETAIL SAW



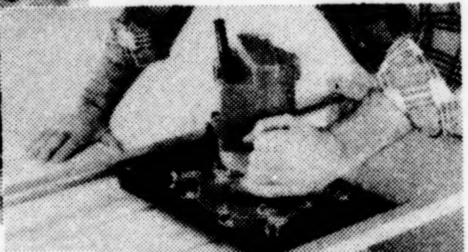
HEX-KEY SET

Triton

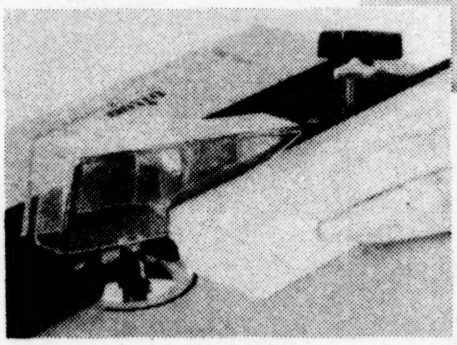
This fiendishly clever table accepts your portable circular saw, converting it into a full-feature tablesaw or a cross-cut rig with most of the attributes of a radial-arm saw. That ain't all; it'll also grab your router — upside-down as a shaper or rightway up as a rail-guided carver capable of difficult tasks such as making louvers. You can also mount your sabersaw under the table, giving a totally obstruction-free jigsaw setup. No pipsqueak, this puppy weighs sixty pounds not counting optional legs, wheels and extension table. You can also get a fat instruction book and a video. I haven't used one yet, but I've fondled a sample. It's well made and done right. If I had my shop to do over, this is how. —J. Baldwin



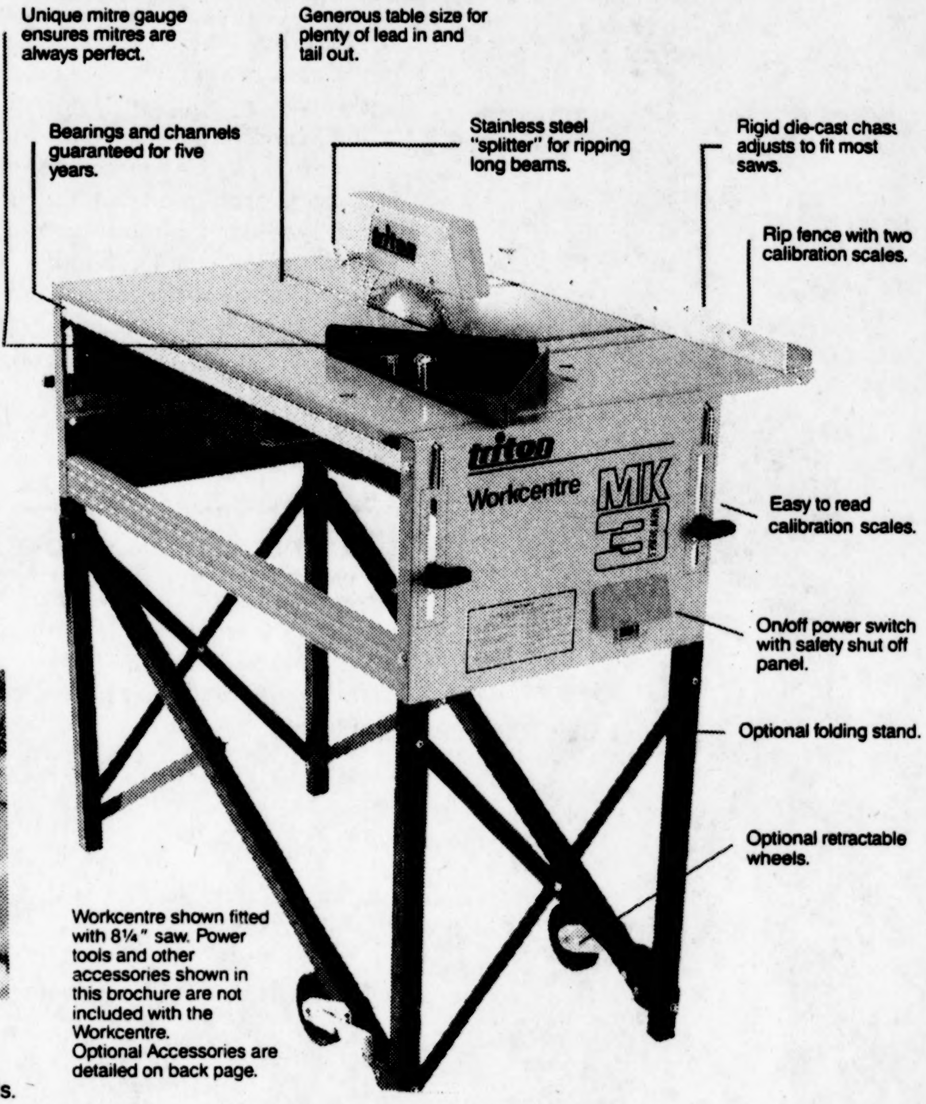
It's a Cross-cut Saw
To cut long beams or awkward lengths of shelving. You can mitre-cut moulding or architrave and you can almost double the depth of cut of your portable power saw.



An Overhead Router*
Now it's easy and safe to rout grooves for shelving or cupboards.



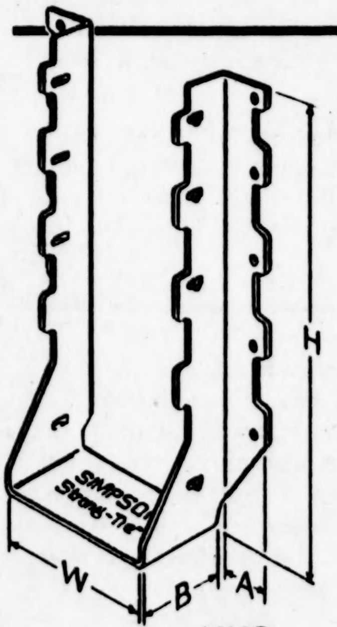
A Shaper Table*
Turn the router upside-down, using it as a shaper table, and you can groove pieces length-ways to make drawer sides for example.


Unique mitre gauge ensures mitres are always perfect.
Generous table size for plenty of lead in and tail out.
Bearings and channels guaranteed for five years.
Stainless steel "splitter" for ripping long beams.
Rigid die-cast chass adjusts to fit most saws.
Rip fence with two calibration scales.
triton
Workcentre
MK 3
Easy to read calibration scales.
On/off power switch with safety shut off panel.
Optional folding stand.
Optional retractable wheels.

Workcentre shown fitted with 8¼" saw. Power tools and other accessories shown in this brochure are not included with the Workcentre.
Optional Accessories are detailed on back page.

Triton Workcentre: $199.97 (plus shipping) from Fred Meyer, Inc./attn. PLP,MO/HAT, P. O. Box 42121, Portland, OR 97242. Brochure **free**.

Simpson Strong-Tie Connectors

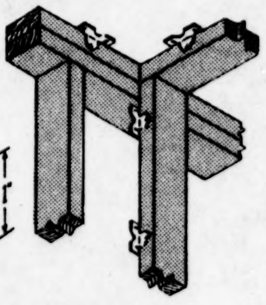

SIMPSON Strong-Tie
H
W
B
A

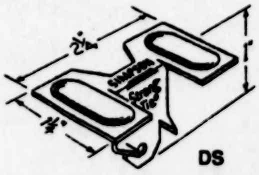
HUS

The object at left is a "joist hanger." It's commonly used to install floor beams in wooden construction. But did you know that this simple metal joiner has lots of cousins? The variety is wondrous to behold. Inspiring, too. Recently we whipped out a bunch of picnic tables in about half the time it would have taken using old-mode joining methods (which can be a real hassle in these days of awful wood quality). In earthquake or tornado country, the use of these ties helps hold things together as well as saving time and money. For exposed locations, you can even get ornamental versions. JB sez check 'em out. —J. Baldwin

Connectors for Wood Construction: Catalog (C-88H-1) **free** from Simpson Strong-Tie Connectors, 1450 Doolittle Drive/P. O. Box 1568, San Leandro, CA 94577; 415/562-7775.

Typical DS Installed



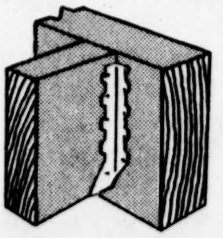

2¼"
1"
1¼"
SIMPSON Strong-Tie

DS

DRYWALL STOPS

Eliminates costly blocking at the top plate, end walls and corners. A typ residence will use several hundred of these inexpensive clips at a substan savings in blocking and labor. The special installation prongs provide even more labor savings.

MATERIAL: 20 gauge steel
FINISH: Galvanized
INSTALLATION: • 16" O.C. or as required, using 8d fasteners.
CODE ACCEPTANCE: ICBO accepted; see Evaluation Report No. 121



Typical HUS Installation

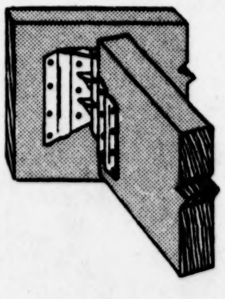
AT LAST! A joist hanger that can connect to any angle for any slope of ±30° and skew up to 60°.

NO SPECIALS or CUSTOMS NEEDED! One stock model is the only hanger you need for any 2x8 through 2x14 joist.

The SSUT, for non-hip conditions, differs from the SSU only by providing a top flange bearing mount instead of a face mount. The SSUT is ideal for top plate nailing applications (minimum 2½" nailer with 16d x 2½" nails).

SLOPE/SKEW CONNECTORS

MATERIAL: 16 gauge steel
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners. See General Note 7, page 2.
• This series hanger cannot be used upside down because of the potential that the hinge pin will fall out.
OPTIONS AVAILABLE: • See also LSU, SUR/SUL, MSUR/MSUL.
CODE ACCEPTANCE: ICBO accepted; see Evaluation Report No. 1258.

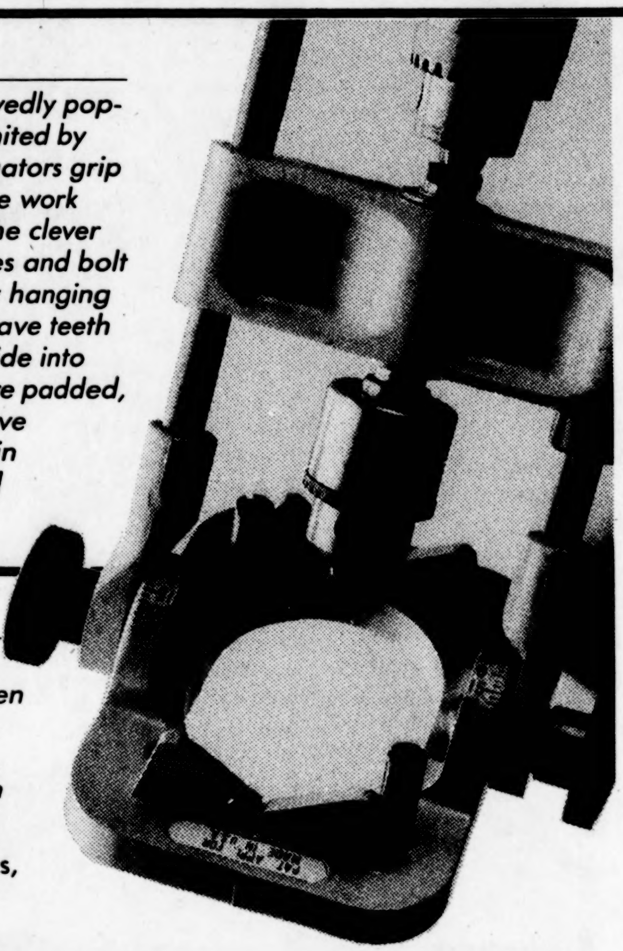


Knipex Alligator Pliers

Knipex Pliers: 10" **$19.95**; 12" **$29.95**. Catalog **$1** from Anglo-American Enterprises Corp., 401-403 Kennedy Blvd./P. O. Box 24, Somerdale, NJ 08083; 609/784-8600.

Look again — these aren't the common, deservedly popular ChannelLocks whose squeezing force is limited by your ability to apply the necessary moxie. Alligators grip all by themselves without your help, fanging the work more resolutely as you increase the tugging. The clever jaw shape grabs many contours, including pipes and bolt heads. I couldn't manage to make them slip by hanging my full weight from the handles, but they do leave teeth marks on some surfaces. The slim profile will slide into places off-limits to fatter designs, the handles are padded, and there's a stop to forestall finger pinches. I've added a pair to my toolbox. —J. Baldwin

[Suggested by Don Leichtling]



Electric Drill Guide

No excuse now for crookedy holes from your hand drill. I use my guide often. Some folks even attach one permanently to their drill. It's especially handy for drilling accurate holes in pipe and tubing. —J. Baldwin

Electric Drill Guide: $42.55 postpaid from Garrett Wade Co., 161 Avenue of the Americas, New York, NY 10013; 800/221-2942.

Router Master

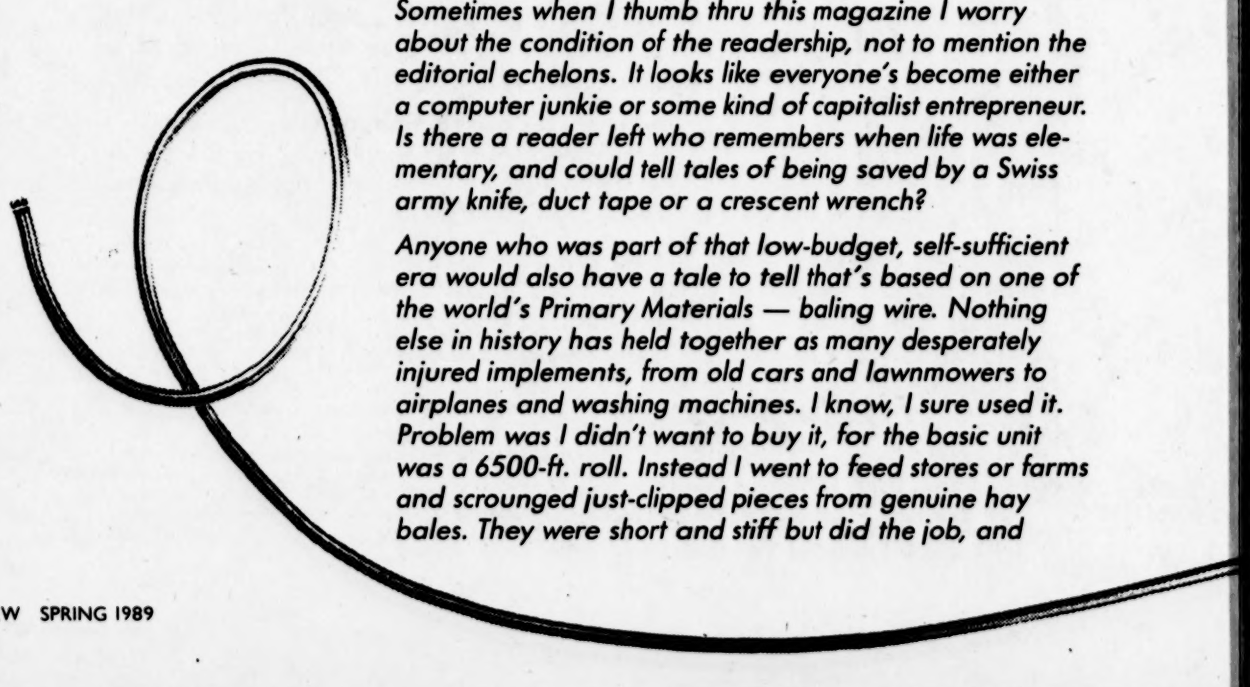
Nasty problem: how to hold work secure and flat whilst routing upon it; clamps get in the way, slip, and may not fit. Solution: this very high-traction mat; the bottom won't slip on the bench and the work won't walk around on the top surface even under the jittery assault of the howling router. Of course, it'll hold just about anything you set on it. And, yes, it looks like carpet underlayment of the sleaziest sort. It isn't. —J. Baldwin

Router Master: 24" x 36" sheet **$9.95**; catalog **free** from Kencraft Co./Quik-Joint, 2851 South Avenue, Toledo, OH 43609; 419/381-1646.

Tie Wire

Sometimes when I thumb thru this magazine I worry about the condition of the readership, not to mention the editorial echelons. It looks like everyone's become either a computer junkie or some kind of capitalist entrepreneur. Is there a reader left who remembers when life was elementary, and could tell tales of being saved by a Swiss army knife, duct tape or a crescent wrench?

Anyone who was part of that low-budget, self-sufficient era would also have a tale to tell that's based on one of the world's Primary Materials — baling wire. Nothing else in history has held together as many desperately injured implements, from old cars and lawnmowers to airplanes and washing machines. I know, I sure used it. Problem was I didn't want to buy it, for the basic unit was a 6500-ft. roll. Instead I went to feed stores or farms and scrounged just-clipped pieces from genuine hay bales. They were short and stiff but did the job, and



Stud Sensor II

It's like having X-Ray eyes, and it works very well on most jobs, as long as you have a fresh battery in it. There's another version of the same device that is also good. (Before ordering this thing, see if your local stores are having a sale — it's commonly discounted.)

—J. Baldwin

Stud Sensor II: $25.45 postpaid; catalog **free** from Woodworker's Supply of New Mexico, 5604 Alameda Place NE, Albuquerque, NM 87113; 800/645-9292.

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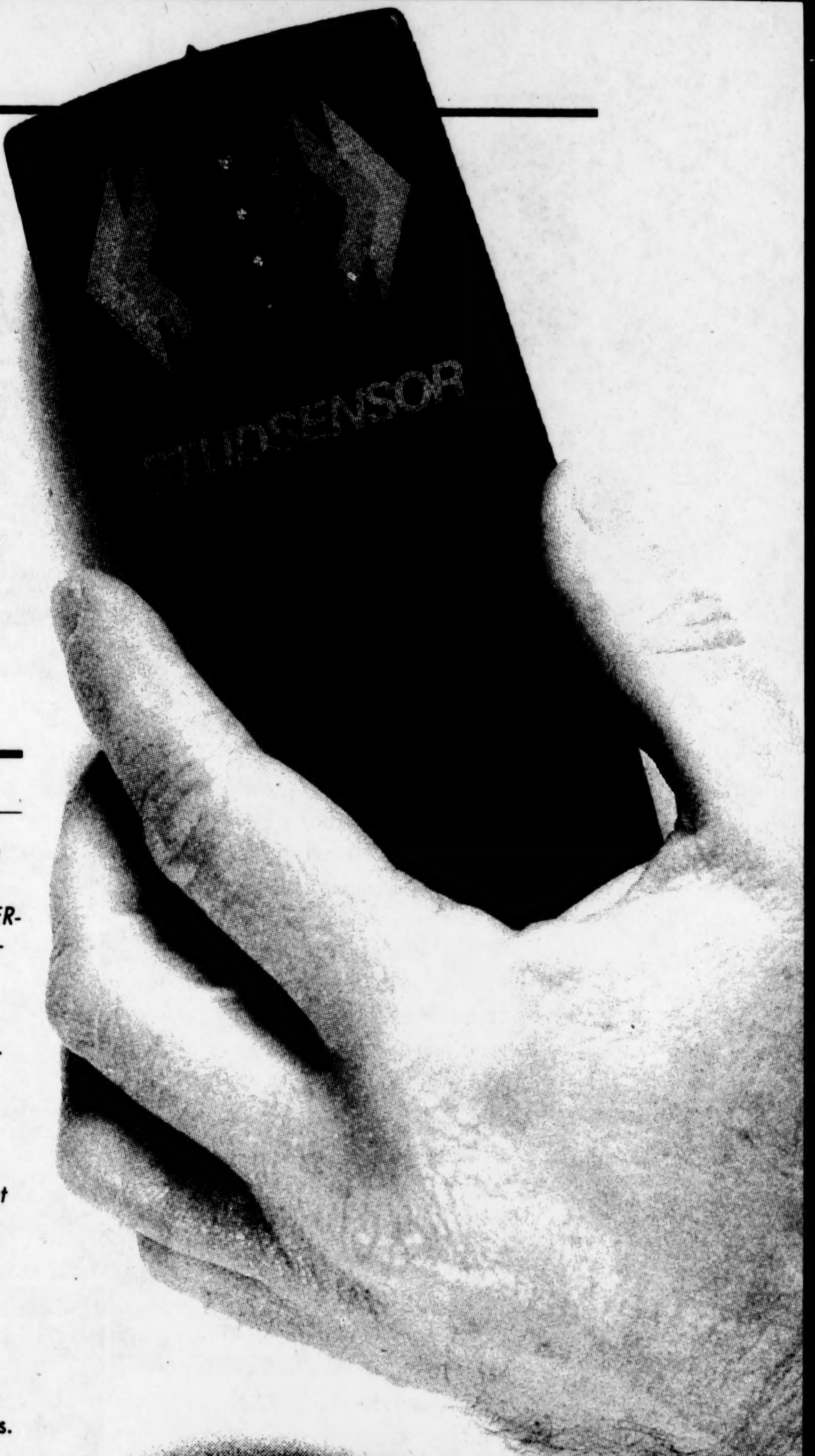
[Catalog description]: Adjustable for varying wall densities, the Stud Sensor II can locate exact locations of studs, fire blocks, floor joists and ceiling joists. Operates on a 9-volt battery (not included). Advanced solid state technology finds studs electronically by measuring density. Don't confuse this highly accurate tool with less accurate, magnetic, nail-finding models. It's the only *electronic* stud finder.



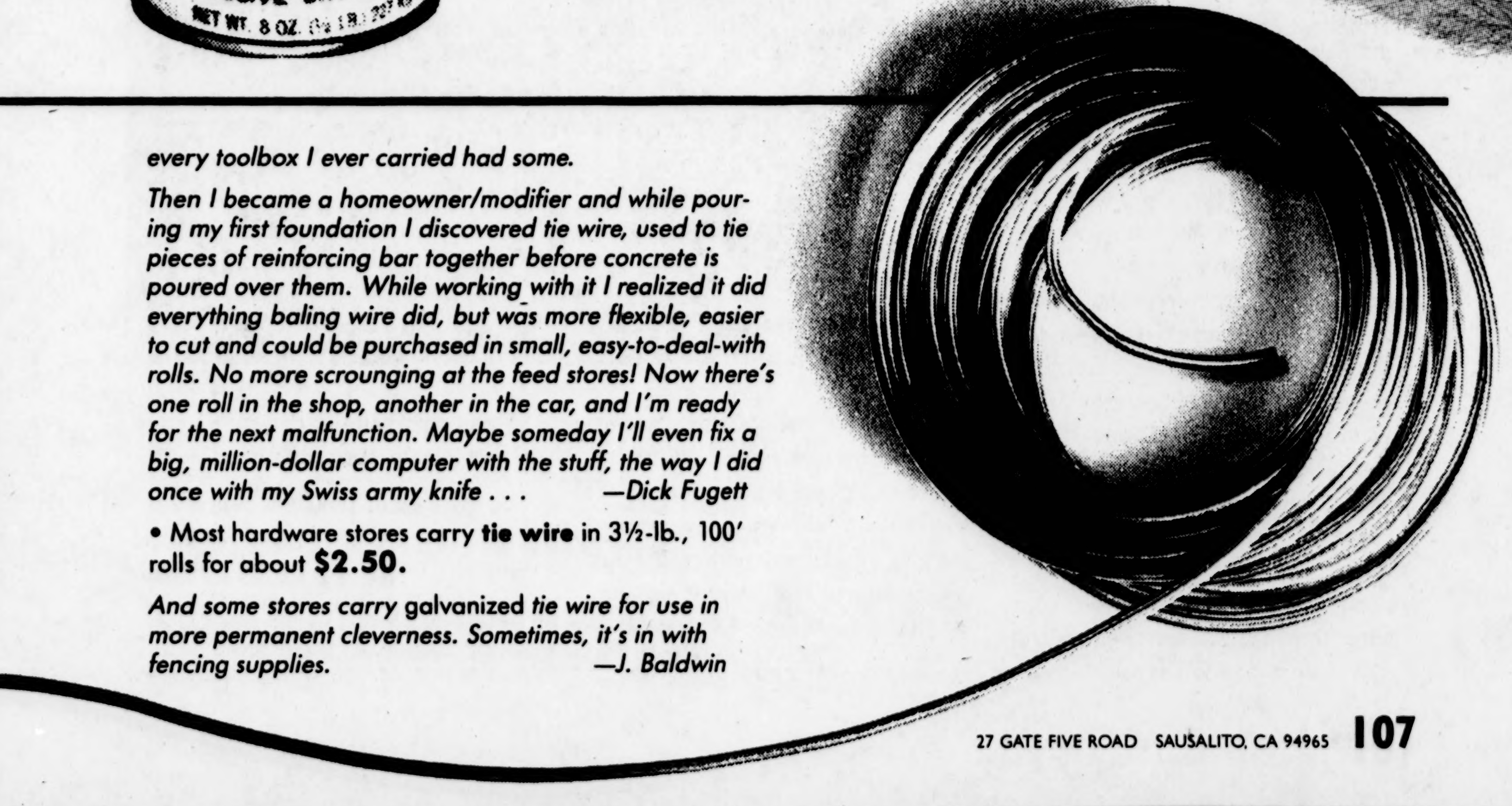
NEVER-SEEZ
...RE NICKEL SPEC...
Anti-Seize and
...icating Compo...
...OTECTION AGA...
...HEAT—TO 2600 DE...
CORROSIVE ENVIRONME...
NET WT. 8 OZ.

NEVER-SEEZ

While Liquid Wrench and WD-40 may be the "pound of cure" necessary to free frozen nuts and bolts, NEVER-SEEZ is the ounce of prevention that keeps them from rusting in the first place. It works in all corrosive environments (I applied it to our mushroom anchor shackle before putting in our mooring, and after two years in salt water the chain was almost eaten through, but that bolt came undone!). It is especially good for wheel lug nuts, brake adjusters, and battery cable terminals.

—Don Hurter

NEVER-SEEZ Anti-Seize Lubricant: $2-$3 at local auto or marine supply stores.



every toolbox I ever carried had some.

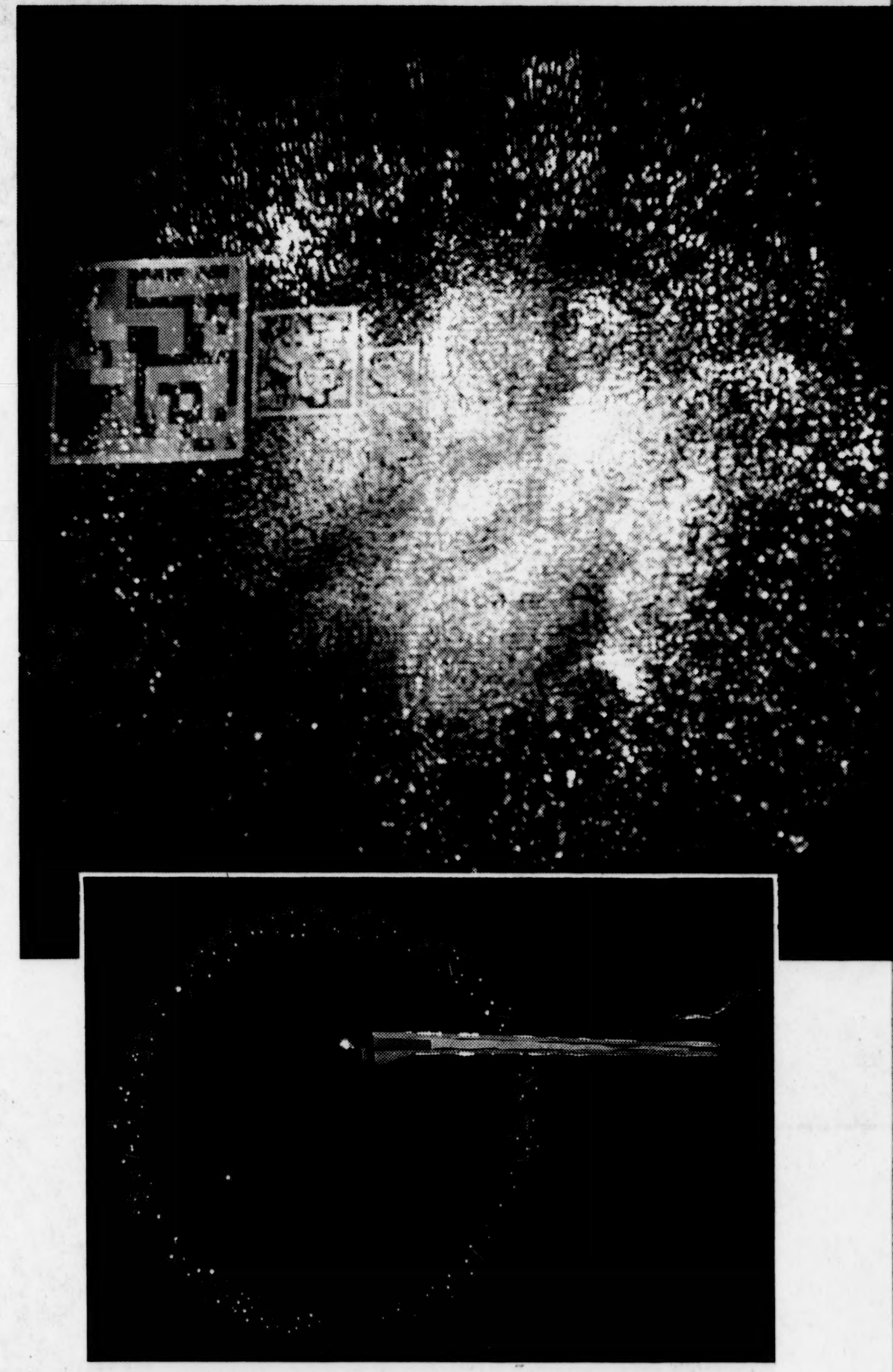
Then I became a homeowner/modifier and while pouring my first foundation I discovered tie wire, used to tie pieces of reinforcing bar together before concrete is poured over them. While working with it I realized it did everything baling wire did, but was more flexible, easier to cut and could be purchased in small, easy-to-deal-with rolls. No more scrounging at the feed stores! Now there's one roll in the shop, another in the car, and I'm ready for the next malfunction. Maybe someday I'll even fix a big, million-dollar computer with the stuff, the way I did once with my Swiss army knife . . . —Dick Fugett

- Most hardware stores carry **tie wire** in 3½-lb., 100' rolls for about **$2.50.**

And some stores carry galvanized tie wire for use in more permanent cleverness. Sometimes, it's in with fencing supplies. —J. Baldwin

THE POIETIC

BY CHARLES LENAY & LAURENT LOTY



THE PROJECT

On July 14, 1989, the President of France will announce the winner for best project of a monument that France will offer as a gift to Japan to celebrate man's entry into the third millenium. This symbolic act will echo France's gift of the Statue of Liberty to the United States in the last century, and is to reflect man's concerns with his future on the planet, with special attention to the ever-growing field of communication technology.

The Poietic Generator group has entered the competition with a project which embodies the very essence of planetary intercommunication. Although the Generator is housed in the monument, there is no one center to the system: each participant is the center.

INTERACTION

To all appearances, the Poietic Generator is a huge screen located in the heart of a floating nave, anchored in the Bay of Japan. Its image is transmitted throughout the world by multiple television networks. That is how you see it at home.

But this is no ordinary picture. It is a meeting place which allows you to participate, really and visibly participate, in the creation of a show which can be seen and admired all over the globe. Wherever you are, you can contact the Poietic Generator. First, you call its number by phone, then you tune in to the television channel which continuously transmits its image. From this moment, you are part of the network. Thanks to your telephone (or, even better, to your computer terminal) you are given control over a small personal signal which is located within the collective Screen. It will be the signal previously attributed to a player who has just left the game, and whom you are replacing. As long as you are connected, you will be able to change your signal as much as you like.

Your signal will consist of a group of squares that you will be able to color at will in all possible combinations.

The signals sent simultaneously by thousands of other players will combine with yours to form the collective picture. What you will therefore see on your TV screen is the result of your action on the whole, and so will

GENERATOR

poietic: capable of making; creative, poetic.
—*Webster's*

each one of the other players all over the world. You realize fully that each spectator is at the same time an actor in the continuous production of the spectacle.

THE MEANING

An "egotistical" action will fail to make any impact: your actions can only have meaning if you take the shapes in your immediate environment into account. Thousands of participants are interpreting and developing strategies at the same time you are. In order for you to recognise a stable form, it has to be recognised by your actor-spectator contemporaries as well. But for these people to recognise this form, it has to appear stable to them as well! Therein lies a profound self-reference to the Poietic Generator, that the system of references of the individual actions is produced by the actions themselves.

The Poietic Generator is the absolute antidote to passive technology corruption. It is much more than play: it is the creation of a collective work of art which imparts to its millions of participants worldwide the concept of oneness out of many, and reveals to them the impact one may have upon the whole when one's originality is made to harmonize with that of others. As a work of art, it is paradoxical because it does not belong to a single creator, but to thousands. Every communication with the work is at once reception, interpretation, and creation. It represents, in one paradoxical picture, the human race completing itself in the act of creating.

A UNIQUE KNOT IN WORLD NETWORKS

The Poietic Generator is unique in world communications. It creates a crucial meeting place for the two families of communications systems to which we are connected: horizontal links used for individual communications (telephone, mail, networks . . .) and vertical systems which simultaneously transmit information to many different users (television, radio, data bases, or written information such as what you're reading at this minute).

The linking of these two communications systems allows the Poietic Generator to emit a picture seen the world over, which is not controlled by a few privileged individuals; one which, on the contrary, is created by those who are looking at it. The actual place where this link takes place is a central nervous system in the body of the planetary communications network. A place where signals from all over are compared, organized, given a relative meaning, and retransmitted to their points of origin. Can it be that we've invented a brain for the Gaia-world?

AUTO-CREATION OF THE POIETIC GENERATOR

Paradoxically, the same creative autonomy of operation applies to the concrete problems of construction of the monument. The fact that thousands of individuals will be in constant touch with the Generator, each of them paying a small amount for the connection, will generate sufficient income to fully finance the project, including the building of the monument as well as the development of the communication network. One can hope that the Generator will thus be free of any controlling influences, either financial or political, free to pursue its own development. ■

Translated from French by Michael I. Hickins. Graphic research by Guilhem Pratz.

The Poietic Generator team, directed by Olivier Auber, is international and multidisciplinary. It is composed of engineers, architects, plastic artists, graphic designers, managers, journalists, philosophers, and scientific historians.

For further documentation, information or exchange of ideas, contact "ASSOCIATION POIESIS," chez AIRELLE, 80 quai de Jemmapes, 75010 Paris, France.

Sex and Broadcasting

Some people go to church. Others work in ramshackle community radio stations. Lorenzo Milam is of the latter persuasion. His 1974 book, ***The Original Sex and Broadcasting****, recently reissued but not updated, is Lorenzo's Great Book, his manual of airwave passion. By now, most of the how-to information is obsolete (it's pointed out in the introduction that "a lot of it never worked all that well anyway"), but its call to bizarre and creative radio programming reverberates louder than ever through the present drone of 1988 commercial music.*

Besides the invaluable inspiration to broadcast your wildest dreams (in any medium, really), ***Sex and Broadcasting*** *is crammed full of interesting anecdotes. Through Lorenzo's well-written and always irreverent essays; station correspondence from the FCC, disgruntled listeners, and the like; and documentation of many kinds of radio programs from many stations, the reader learns of the frantic daily battles fought just to stay on the air.*

This book reminds me that the delirious are the happiest, most productive people on earth. —Jeanne Carstensen

Sex and Broadcasting
Lorenzo Wilson Milam
1975; 348 pp.

$14.95
postpaid from:
Mho & Mho Works
P. O. Box 33135
San Diego, CA 92103

or Whole Earth Access

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The dismal state of American broadcasting is perpetuated by nitwits who should know better. *Broadcasting Magazine* — the memento mori of the whole 19th century robber baron tradition of commercial broadcasting, babbles about censorship every time the Federal Communications Commission moves timidly into the area of consumer (listener and viewer) protection. The turnips at the National Association of Broadcasters have millions of dollars to bang on every congressman or Senator who may dare to try to change the milking of the golden goose aether. And the FCC itself is harassed and badgered on all sides by an industry which has enormous power.

•

Because we never have enough money — you have to be selective in the bills that you pay. Landlords and utilities require instant payment: else they will cut you off and put you in the street. Mortgages can often be delayed for months — until actual judgement proceedings — but these can be expensive because of the late charge penalties which amount to 20 or 30% fees. Late charges on *non-contract* bills (regular bills from stores and suppliers) are illegal under California law and do not have to be paid. People who work for you usually need their checks desperately on pay day, but will often take two week's worth temporarily if you are strapped. The KTAO bills are paid in the following order:

1) Studio rent; *2)* Mortgage on the transmitter site; *3)* Salaries to Cese, Doug, John, and David; *4)* Line charges to the transmitter; *5)* Telephone bill; *6)* PG&E bill; *7)* Stores & suppliers; *8)* Cream & fruit-juice fund (Grocery store); *9)* Printing bills; *10)* Legal fees; *11)* Equipment, repair & maintenance; *12)* Typing supplies, stationery; *13)* Bill for pens I ordered from Trenton when I was drunk.

Factsheet Five • How to Publish a Fanzine

When I wonder what the subconscious of North America is dwelling on, I devour the thousands of microscopically printed entries in ***Factsheet Five****. These review obscure, marginal periodicals called zines, as in fanzine, short for fan magazine. It's sort of like reading a directory of "Fringe Ideas in Print." Lone crazies, the scattered longings of a movement in birth, rants of groups way outside the counterculture, students bored with school, ideas with no names. Editor Mike Gunderloy should be anointed a National Living Monument because he actually reads every one of these minutiae, and rewrites each dense issue from scratch. Phew! Although we've mentioned* ***Factsheet Five*** *("the zine of zines") before in* ***WER****, it has increased in scope, quantity, and quality to the point of being the prime window into an alternative press 180 degrees more alternative than that digested by* ***Utne Reader****.*

As grand surveyor of this self-published jungle, Gunderloy has codified his advice for zine survival in ***How to Publish a Fanzine****. Most zines have a life of less than a year, but his counsel can improve that. Cheap printing, mailing methods, and dealing with the bureaucratic Post Office are the main concerns. This is the best crash course there is on starting a periodical without much money.*
—Kevin Kelly

Factsheet Five
Mike Gunderloy, Editor
$8/year
(4 issues)

How to Publish a Fanzine
Mike Gunderloy
1988; 91 pp.

$6
($9 postpaid)

Both from:
Gunderloy/Factsheet Five
6 Arizona Avenue
Rensselaer, NY 12144-4502

factsheet five
28

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BE SPECIALIZED. No matter how good your music zine is, if you try to compete head-on with *Rolling Stone* the first week, you're dead meat. Similarly, a conservative political zine shouldn't try to emulate *National Review* immediately. It's OK to have goals, but you've got to work up to them. The way to do this is to start doing one thing better than anyone else and expand from there.

•

Bulk Mail has to be sorted by zip code, rubber-banded into packages, labelled and sacked by you before it goes to the post office. Although there are printed regulations covering all this, be prepared for your local postal workers to tell you something completely different — the post office is really a lot of little companies wearing the same uniform, not one big corporation. Humor the local guys — they're the ones you have to deal with.

•

For wider, random distribution, several subterfuges are available. The boldest move is to put on a postal uniform and stuff copies in mailboxes as you go down the street. Another possibility is to buy a newspaper from a vending machine and leave fifty copies of your own paper behind in the box. A third means of distribution is to leave a stack atop a tall building, letting the wind distribute them as you leave. *—How to Publish a Fanzine*

The Book of Fax

Overnight isn't fast enough anymore. Paper communication is now done in a matter of minutes via ever-ready fax machines. In a blink of the eye, offices have gone from never having heard of the machines to being crippled without them. It's an explosion ripe for myth, misunderstanding, and rank ignorance. This excellent, succinct book can cure those poor fax facts. It's currently the only source of reliable advice on fax use, fax abuse (like fax junk mail), fax etiquette, and fax future. —Kevin Kelly

●

Advantages:
1. Like the telephone, fax transmits instantaneously.
2. Like mail, fax can send both text and graphics of virtually any length and complexity.
3. Like telex and telegrams, fax transmissions are dramatic, conveying urgency and demanding attention.
4. The recipient need not be present to receive a fax message.
5. The sender receives written confirmation that the message has been received.
6. Costs are moderate, amounting to little more than the telephone bill.
7. Messages arrive in a form that can be filed easily.
8. Fax technology is relatively simple, requiring less training.

Disadvantages:
1. Though fax use proliferates, many businesses still haven't adopted fax.
2. Though basic fax is easy to use, advanced features are sometimes complicated.
3. Fax is the only channel of communication for which the recipient and the sender incur supply and maintenance costs. Although most people buy fax to send information, they usually become recipients in short order.
4. Because sending costs are low, senders may transmit unsolicited fax messages demanding attention to a matter that the recipient might not wish to address.
5. Fax is so new that many organizations don't have routine procedures for handling incoming fax messages.
6. Fax messages aren't private; anyone at a fax terminal can read them.
7. The transmission quality of fax machines is uneven.

The Book of Fax
Daniel Fishman
and Elliot King
1988; 134 pp.
$12.95
($15.35 postpaid) from:
Ventana Press
P. O. Box 2468
Chapel Hill, NC 27515
919/942-0220
or Whole Earth Access

Some of the disadvantages (particularly the fact that some businesses don't have fax machines and the lack of internal procedures to handle fax traffic) will lessen as fax use grows. However, other disadvantages — such as costs to recipients and being at the mercy of unsolicited transmissions — will grow.

●

As fax technology becomes more common, busy signals will increase. Many companies will have several fax machines, each plugged into its own dedicated line. A fax machine with *alternate-number dialing* can be programmed to dial another telephone number automatically if the original number dialed is engaged.

●

Price-conscious buyers should avoid specials that advertise "Brand Name, New Fax" for $499 or less. Often these machines are old Group 2 faxes, which can take three minutes to transmit a page — as much as 15 times longer than Group 3 faxes. Slow speed alone makes them a bad buy, not to mention their lack of compatibility. The fax revolution really began when Group 3 became available. Don't buy obsolete technology.

●

Think twice about having your fax number listed in any kind of directory. You may find yourself deluged with unwanted fax junk mail.

Don't add features to the telephone line you plan to use for fax. . . . Above all, void Call Waiting, which signals another incoming call with a loud click on the line. The fax machine doesn't understand the function of this click and misinterprets the information, consequently garbling incoming and outgoing messages.

Out West

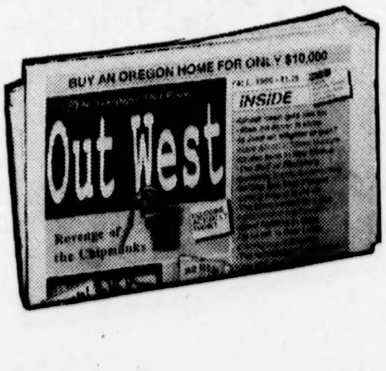
Would you subscribe to a newspaper written and published by one man out of his motorhome? About three thousand folks do now, and the paper has only been published for a bit more than a year. No advertising, either. Instead, the paper is filled with the thoughts, advice, aphorisms, and adventures of its editor who gets to drive all over the place looking at interesting things, just as many of us would but don't. He will accept articles, but "not if based on a junket." I enviously wish him luck.
—J. Baldwin

●

Cat of the Future?
Speaking of pets, I have long felt that if you want to become a millionaire, there is one invention that begs to be invented. Whoever invents it will make millions of dollars. What I am speaking about, of course, is a cat that never has to go potty. I refer to this animal as the "crap-less cat." Personally, I will be the first in line to buy one.

The makers of Johnny Cat, I'm sure, are not eager to see such an animal invented. But with such amazing progress in genetic engineering these days, they should at least consider the possibility.

Out West
Chuck Woodbury, Editor
$5/year
(4 issues) from:
Out West
P. O. Box 19894
Sacramento, CA 95819



●

A good friend of mine has communicated for the last 20 years with a fellow he served with in Vietnam. Each has saved the other's letters. Sometimes they photocopy an old letter and send it back. These letters have thus become journals for these two men. Their written words have documented two decades of their lives — marriage, divorces, good times, and bad times.

Writing a letter is much more than a cheap way to communicate.

Art Lacey and his bomber.

●

About Deming
In case you didn't know it, Deming, N.M. is known as "the home of pure water and fast ducks."

GOOD VIDEO DOCUMENTARIES

BY CORINNE CULLEN HAWKINS & SARAH VANDERSHAF

GOOD DOCUMENTARIES pull us into particular and private worlds — punk music in L.A., pet cemeteries, garlic festivals — illuminated by a director's personal vision. If you have trouble locating any of the videos reviewed here (and you will), Facets mail-order rental service (*WER* #59, p. 67) carries them all. (Facets Multimedia Inc., 1517 W. Fullerton Avenue, Chicago, IL 60614; 800/331-6197.)

The Atomic Cafe
Kevin Rafferty, 1982

"Watched from a safe distance, this explosion is one of the most beautiful sights known to man." The speaker is an army officer, and the object of his aesthetic devotion is the detonation of a nuclear bomb.

This is just one scene from The Atomic Cafe*, a compilation of atomic Americana from the forties and fifties. Through newsreels and other historical footage, the film vividly captures the U.S. government's giddy, upbeat campaign to counter public fears and make Americans love the Bomb. The documentary covers Truman's announcement of the bombing of Hiroshima, the evacuation of natives from Bikini Atoll, a mock Cold War "communist takeover" of a small town in Wisconsin, classroom duck-&-cover drills, atomic-bomb folk songs, atomic cartoons, fallout-proof fashions, bomb-shelter etiquette (take a shotgun), and how to prepare fallout shelter rations (remember the can opener!). A youthful Congressman Lloyd Bentsen makes a surprise cameo appearance to advocate using the A-bomb to shorten the Korean War.* The Atomic Cafe *is a priceless postcard from the Early Atomic Age. —SV*

Garlic is as Good as Ten Mothers
Les Blank, 1977

Garlic is one of those things you either love or hate. In this film, Les Blank presents the position of the pro-garlic faction. A cross-section of Americans — Italians, blacks, Spaniards, Chinese — sing the praises of the "stinking rose."

Garlic got its bad press in this country from "the American-Puritan-Anglo thing," according to one aficionado. Now that old social structures are breaking down, "people are looking at what it means to be a human being — passionate about life and not too concerned about civilized behavior."

But what could be more civilized than eating garlic? One of the world's favorite spices, garlic has been credited with lowering blood pressure, even with inducing "garlic euphoria." Eleanor Roosevelt thought she could keep her memory sharp by eating three chocolate-covered cloves of garlic a day. But most of Blank's interviewees have more ordinary reasons for garlicphilia. From the tables of Chez Panisse to the Gilroy Garlic Festival, they simply love to eat the stuff. —SV

fight mouthwash
eat garlic
fight mouthwash
eat garlic

Garlic is as Good as Ten Mothers

Burden of Dreams
Les Blank, 1982

This is the best film on filmmaking I've ever seen. Werner Herzog challenges and seeks to "conquer" nature by filming Fitzcarraldo *1,000 miles from civilization, in the South American rainforest. The main character, Fitzcarraldo, dreams of bringing Opera, and Caruso, to the jungle.*

Based on a true incident, Herzog takes some unusual liberties with the story. The climax of the movie includes moving a ship up a 40-degree slope using only block and tackle. Fitzcarraldo managed the feat at the turn of the century by taking the ship apart and moving it in pieces. Herzog insists on moving the ship whole. Les Blank's documentary of Herzog's filming difficulties — Indian raids and border wars; cast illness, boredom, and low morale; plane crashes and a near-impossible engineering task — reveal the story of Herzog's obsession, not just to film the story, but to live it. —CCH

Gates of Heaven
Errol Morris, 1978

In capturing the full story of a failed Los Altos pet cemetery (the bodies were exhumed and shipped to another pet cemetery in Napa), Errol Morris lets the people involved — cemetery owners, investors, pet owners, even a renderer — tell their stories. (He believes that if you let people talk, they will say what you want.) There's a rich load of quiet drama here: ideological conflicts, success and failure, idealism and personality. Big issues come wrapped in the everyday problems of running a business. From Floyd McClure's rose-colored dream of opening a pet cemetery to Phil Harbert's Positive Mental Attitude, the bleak reality of death and loss is explored at an oblique and often funny angle. —CCH

The Decline of Western Civilization

The Decline of Western Civilization

Penelope Spheeris, 1985

Some kid is up on the stage, wearing a swastika t-shirt and a haircut that makes him look like he has an advanced case of the mange, slurring the words of a song about starting a war in New Jersey into one long, indistinct growl. This is surely The Decline of Western Civilization, *Penelope Spheeris' riveting and sometimes hilarious documentary on the rise of the L.A. punk scene, circa 1980. Spheeris filmed performances by groups like Fear, Germs, Black Flag, and X, and interviewed band members, groupies, managers, and fans. In one scene, a middle-aged club owner dispassionately describes the punks' pogo dancing as "people gyrating up and down in a vertical position." In another sequence, the weary manager of the Germs describes her job as "like being the mother of four 3-year-olds who are always fighting with each other."*

Spheeris' sympathetic approach allows the punk musicians to come off as more than just mindless morons. Most appear fairly intelligent and articulate, though alienated by life as they have known it. They also show admirable dedication to their wildly unprofitable art form. But the film also shows that, despite the angry pose, punkers enjoy their lifestyle, less as an outlet for the frustration of being trapped in the city than as a clamor of hatred for the suburbs many of the punks once called home: "Suburban scumbags, they don't care/They just get fat and dye their hair." Dye it purple, maybe? Spheeris has recently filmed The Decline of Western Civilization, Part II: The Metal Years. *It's back to the L.A. clubs, but this time the musicians are heavy-metal rockers. As of this writing, it's not out on video yet, but should be coming soon to rental stores wherever Western civilization is in decline. —SV*

The Weavers: Wasn't That a Time!

Jim Brown, 1982

The only fault with this video is that it ends too soon. I could have listened to the Weavers, their stories and especially their songs, all night. The Weavers, the top pop quartet of the fifties, brought authentic folksongs into the mainstream, and influenced pop music ever after. This documentary records their final concert at Carnegie Hall, their first (and as it turns out, last) reunion in 22 years. The Weavers (Lee Hays, Pete Seeger, Ronnie Gilbert, Fred Hellerman) went their separate ways when they were blacklisted, rumored to be Communists, during the McCarthy hysteria. Though there's some wonderful footage of the Weavers in their prime and scenes of them talking about the fifties, The Weavers *isn't about the past. It's about four people who believe in the dangerous power of songs, and how that belief (rather than anger, bitterness, despair, or defeat) has shaped their lives. The Weavers are survivors and their songs say we are too. Their singing is joyful, energetic, powerful, and the final concert scenes capture an excitement indistinguishable from love. Too good to miss. —CCH*

Say Amen, Somebody

George Nierenberg, 1983

The filmmaker, Nierenberg, captures the joyful foot-tapping, hand-clapping essence of gospel music in his well-paced documentary. The interviews with Thomas Dorsey, the father of gospel music, and Willie May Ford Smith, one of the first gospel singers, are as lively as the music — filling in the history of gospel and revealing the people who made it happen. But the main thing is the music and there's lots of it — upbeat, inspiring and full of energy. The sound quality is excellent — turn up the volume and rock along. —CCH

This is Spinal Tap

Rob Reiner, 1984

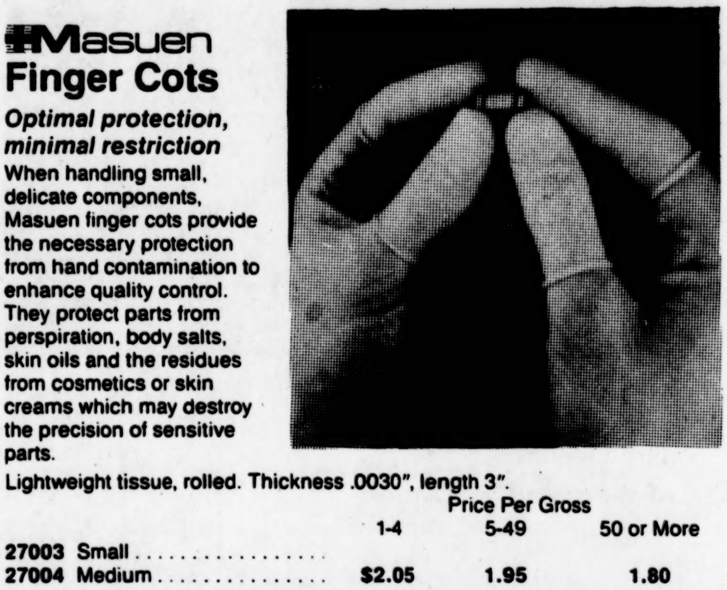
Spinal Tap could be any rock group that almost made it (and some that did). The group had one big hit in the sixties, "Listen to the Flower People," and they've struggled to keep up with changing musical fads ever since. This time around it's heavy metal. Documentary director Martin DiBergi (Rob Reiner) narrates a straightforward "rockumentary" of the band on tour, complete with fatuous interviews, where stories of the band's history (including tales of former drummers spontaneously bursting into flame) enliven the performers' philosophical meanderings. Almost accidentally, the cameras catch Spinal Tap coming unglued. At the edges of the picture and in background incidents we see minor mishaps escalate into a disastrous tour, complete with backstage fighting, power grabs, defective stage props, cancelled bookings and a flop of a new album. This satirical pseudo-documentary about a nonexistent rock group stabs away at all that's mediocre in rock music and punctures a few documentary film clichés as well. The concert scenes are superb: the music is wonderfully bad — not far removed from the music you hear on the radio, just carried one notch further on the ratchet of excess. An hilarious movie, and as true as any real documentary I've seen. —CCH ■

Masuen First Aid and Safety Supplies

The expected assortment of first-aid kits is here, along with lots of specialized bandages, protective gear and the latest in mouth-to-mask equipment that protects the rescuer from "contamination" (AIDS-fear) and the nearly inevitable victim-barf that the first-aid manuals never tell you about. Much of this stuff you will not find at your local drugstore, so it's an education as well as a source of supplies that might help ease your life a bit.

—J. Baldwin

Masuen First Aid and Safety: Catalog **free** from Masuen, 201 Bond Street/P. O. Box 768, Elk Grove Village, IL 60009; 800/831-0894.



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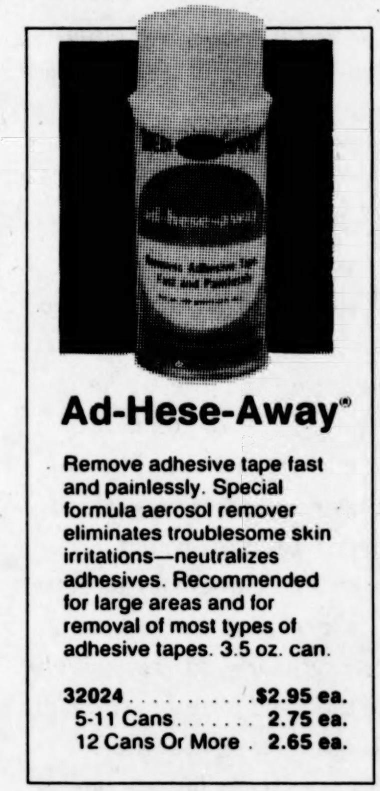

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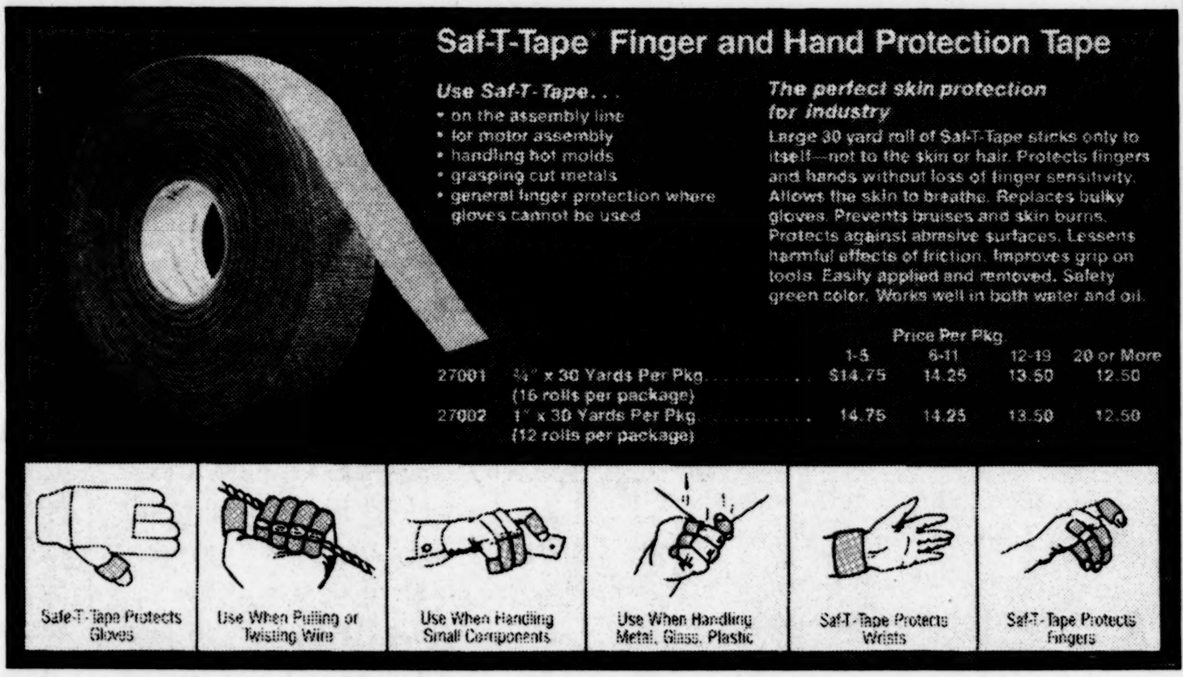

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Sirius Puppy Training Video

The premise of this instructional video is that obedience training for dogs should begin when they are young puppies — before they reach six months, which is when most training classes begin. The teacher is Dr. Ian Dunbar, a heavily credentialed Englishman who has put over 4,000 puppies through their paces in his classes in northern California. He teaches off-leash training, using praise and bits of food as rewards, and although he works quickly, it is apparent that Dunbar has a keen understanding of both dogs and dog-human interactions.

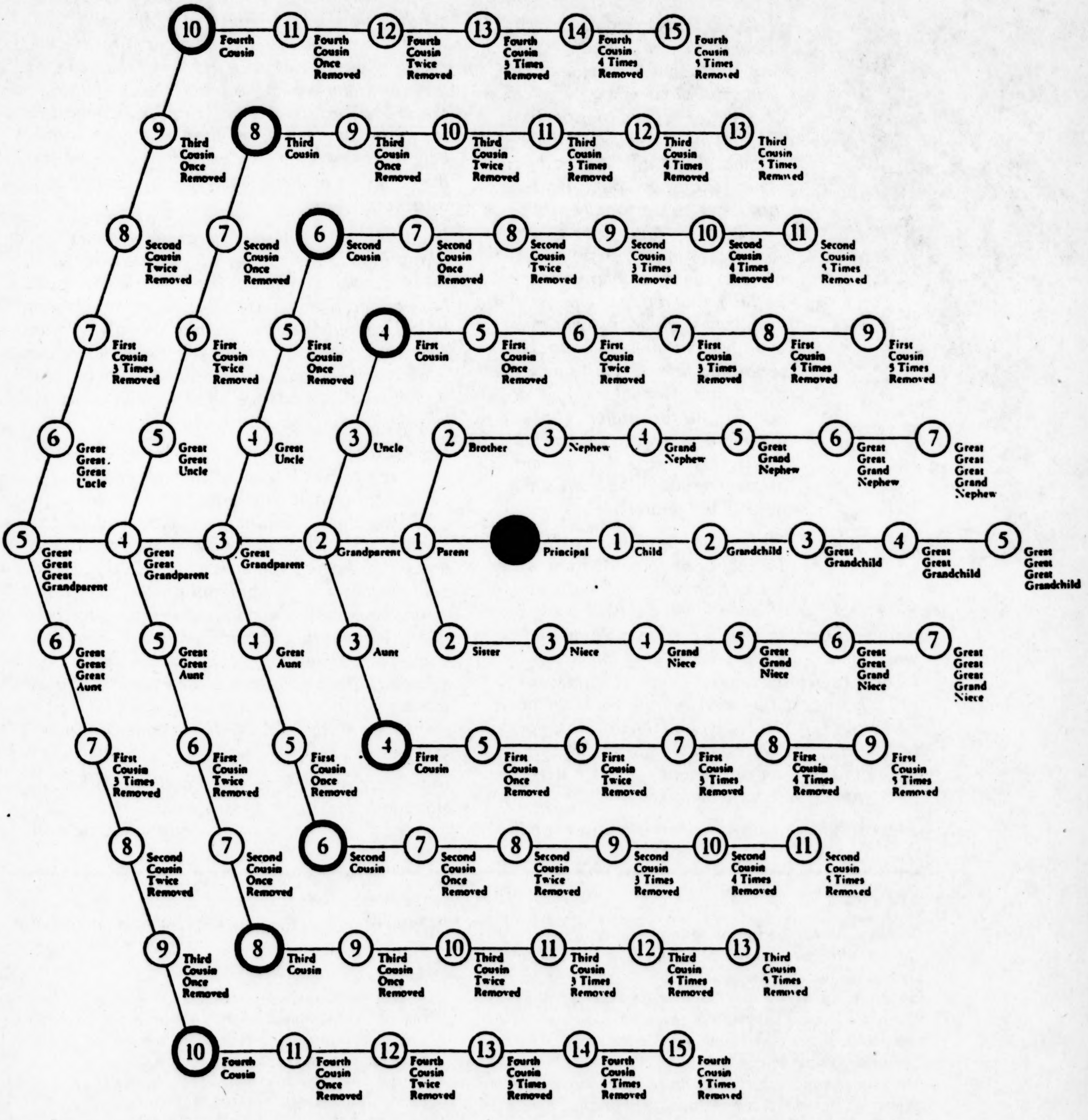
The video follows seven puppies, all under 18 weeks of age, and their owners through four classes. Some of the families include young children, who are full participants in the instruction. The train-'em-early strategy is essential for small child/big dog pairings, allowing two-way learning when the dog is small, before size disparity becomes an important factor.

The visual format makes clear in a way that a book never could that, adult or child, the puppies are training the owners as fast as the owners are training the puppies. In addition to normal commands like sit, stay, come, and heel, special attention is paid to preventing biting — including a segment on getting a dog used to being touched when it is eating from its bowl. This video is not intended for teaching old dogs new tricks, but for anyone contemplating owning a puppy or a dog, this course is both useful and reassuring. *—Richard Nilsen*

Sirius Puppy Training With Dr. Ian Dunbar: **$43.45** postpaid (VHS or Beta) from Resolution Video, 1 Mill Street, Burlington, VT 05401; 800/862-8900.

THE FAMILY TREE

Legal degrees of kinship


10 Fourth Cousin
11 Fourth Cousin Once Removed
12 Fourth Cousin Twice Removed
13 Fourth Cousin 3 Times Removed
14 Fourth Cousin 4 Times Removed
15 Fourth Cousin 5 Times Removed
9 Third Cousin Once Removed
8 Third Cousin
9 Third Cousin Once Removed
10 Third Cousin Twice Removed
11 Third Cousin 3 Times Removed
12 Third Cousin 4 Times Removed
13 Third Cousin 5 Times Removed
8 Second Cousin Twice Removed
7 Second Cousin Once Removed
6 Second Cousin
7 Second Cousin Once Removed
8 Second Cousin Twice Removed
9 Second Cousin 3 Times Removed
10 Second Cousin 4 Times Removed
11 Second Cousin 5 Times Removed
7 First Cousin 3 Times Removed
6 First Cousin Twice Removed
5 First Cousin Once Removed
4 First Cousin
5 First Cousin Once Removed
6 First Cousin Twice Removed
7 First Cousin 3 Times Removed
8 First Cousin 4 Times Removed
9 First Cousin 5 Times Removed
6 Great Great Great Uncle
5 Great Great Uncle
4 Great Uncle
3 Uncle
2 Brother
3 Nephew
4 Grand Nephew
5 Great Grand Nephew
6 Great Great Grand Nephew
7 Great Great Great Grand Nephew
5 Great Great Great Grandparent
4 Great Great Grandparent
3 Great Grandparent
2 Grandparent
1 Parent
Principal
1 Child
2 Grandchild
3 Great Grandchild
4 Great Great Grandchild
5 Great Great Great Grandchild
6 Great Great Great Aunt
5 Great Great Aunt
4 Great Aunt
3 Aunt
2 Sister
3 Niece
4 Grand Niece
5 Great Grand Niece
6 Great Great Grand Niece
7 Great Great Great Grand Niece
7 First Cousin 3 Times Removed
6 First Cousin Twice Removed
5 First Cousin Once Removed
4 First Cousin
5 First Cousin Once Removed
6 First Cousin Twice Removed
7 First Cousin 3 Times Removed
8 First Cousin 4 Times Removed
9 First Cousin 5 Times Removed
8 Second Cousin Twice Removed
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9 Second Cousin 3 Times Removed
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10 Third Cousin Twice Removed
11 Third Cousin 3 Times Removed
12 Third Cousin 4 Times Removed
13 Third Cousin 5 Times Removed
10 Fourth Cousin
11 Fourth Cousin Once Removed
12 Fourth Cousin Twice Removed
13 Fourth Cousin 3 Times Removed
14 Fourth Cousin 4 Times Removed
15 Fourth Cousin 5 Times Removed

Lines indicate the paths of direct descendancy. Numbers in the circles indicate the degree of kindred to the principle. Full cousins are in heavy black circles. Cousins to the left are "cousins in the ascendancy." Cousins to the right are "cousins in descendency."

—Sent to us by Mack Taylor

FEMINISM 1989

I WAS SURPRISED HOW DEEPLY the magazines and journals we review in this survey affected me. To understand them, I had to go back and read some seminal feminist writings. I am a woman who came of age, not in the sixties or seventies, but in the Reagan eighties. Feminist thought has seeped into my consciousness, but I realized that I'd never personally grappled with what it means to be a feminist. And that without that personal experience, feminist theory means nothing. Get ready to change, these magazines said to me over and over. Feminist theory cannot be separated from feminist practice, that is, the essential struggle for equal rights for women. That struggle begins with each woman looking inside herself (and man looking inside himself) for how she's internalized the oppressive system.

Old news? I thought so at first. Then I began to name some experiences from my own life. I mean, the Equal Rights Amendment did NOT pass. Reagan tried hard to overturn Roe vs. Wade *and Bush will continue the crusade. In San Francisco, where I live, three close woman friends of mine were brutally attacked by men in three separate incidents. And at San Francisco General Hospital (where a friend works) funding for a battered women's program was recently slashed, leaving forty women with virtually no support.*

Silence. Feminists have written extensively on the subject of silence. "The entire history of women's struggle for self-determination has been muffled in silence over and over," Adrienne Rich wrote in 1978. The process of women founding a culture based on women's reality is tremendously difficult, and means, in Rich's words, "a real break from the passivity of the twentieth-century Western mind." Audre Lorde, writing in 1977, said, "for women, then, poetry is not a luxury. It is a vital necessity of our existence. It forms the quality of the light within which we predicate our hopes and dreams toward survival and change, first made into language, then into idea, then into more tangible action. Poetry is the way we help give name to the nameless so it can be thought." Language as action.

I realized that the idea of breaking women's silence is as urgent today as it was a decade ago, when Adrienne Rich and Audre Lorde wrote the above. No wonder the feminist press has remained so vital. In 1989 a fairly progressive and worldly woman — me — still needed to be shaken by her liberal roots into actually doing something about the oppression of women. I needed to be shaken to even acknowledge that the oppression still exists.

Now you probably think you're going to be hit over the head with feminist rhetoric in these magazines. Far from it. The magazines we review cover literature, spirituality, politics, the international women's movement, women's studies, art, and more. Rather, immersion in these pages is like being thrown into the brilliant whirlwind of an emerging culture: the ongoing struggles for bodily rights, equal pay, childcare; analyzing hierarchy and violence; developing new artistic forms and traditions; the emergence of new goddess-based spirituality. The writing and art, most of it, has the eloquence of passion, of ideas connected to the real world.

The silence is breaking again and again: fiercely, eloquently, like an endless wave.

—Jeanne Carstensen

Trivia

***Trivia** unearths the fragments of women's lives still buried, after all these years, by inflexible patriarchal structures. It is feisty feminist theory — not pedantic, dogmatic, or dry — with iconoclastic undertones. Topics like black lesbian literature, which is said to have "remained in a shadow of innuendo" in the realm of feminist criticism, shine a bright light on conflicting values* within *the women's movement. Menstrual extraction, a way of giving women direct access to early abortions, is handled with candor and graphic detail. A rock-climber writes about the place and the moment where desire meets terror. All material is delivered with feeling, and most of it is, as the editor of one issue put it, "fragile and sometimes threatening, flooded with disagreements and epiphanies."*

In the dictionary, "trivia" means "unimportant things." However, within the context of this journal, the word trivia means commonplace. Everyday aspects of women's lives have been revealed here as encounters with the sacred. Exactly what the sacred is, though, depends on the essayist, as much as your own individual perspective.

—Lori Woolpert

•

We shrink away from touching
our power, we shrink away, we starve ourselves
and each other, we're scared shitless
of what it could be to take and use our love,
hose it on a city, on a world,
to wield and guide its spray, destroying
poisons, parasites, rats, viruses —
like the terrible mothers we long and dread to be.
—Adrienne Rich

Trivia
Lise Weil, Editor
$12/year
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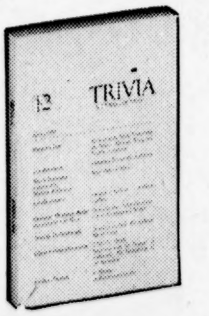

The Women's Review of Books • Belles Lettres

These excellent magazines of women reviewing books by women are evidence of the phenomenal vitality of women's writing today. Many of the writers they review are well known — Toni Morrison, Louise Erdrich, Doris Lessing, among many others. Others are scholars with notoriety in their fields, but not in the general public. And still others are relatively unknown: foreign authors; poets; new writers; minority women — black, lesbian, chicana, socialist, poor, etc. — women whose work still appears primarily in the wonderful but sparsely distributed small press.

Not only do these magazines point to important voices, they amplify and clarify those voices by presenting them in the context of women's culture — of the particular social, economic, spiritual, psychological circumstances from which the work comes. That is, of course, the job of good criticism, but women writers have not been afforded that courtesy until very recently.

I love both ***Belles Lettres*** *and* ***The Women's Review of Books****. Don't miss either one.* ***Belles Lettres*** *reviews more fiction and poetry, and the writing is more accessible. Special sections on topics like Canadian, Australian, Jewish, or mystery writers, feminist criticism, or World War II novels review lots of books briefly and always leave me wanting to buy half of them.* ***Belles Lettres*** *has a pleasing crispness throughout; the reviews are long enough to provide background but not so long they get boring; the writing is intelligent and witty; everything from women's mystery to history is reviewed. OK. If I could only subscribe to one, it would be* ***Belles Lettres****.*

The Women's Review of Books *is a bit like the* ***New York Times Book Review*** *with a feminist slant. For instance, a biography of Dorothy Parker is examined in light of "feminist biographies." And in a well-written essay, Margaret Randall sees the metaphor of invasion as prevalent in Barbara Kingsolver's novel* ***The Bean Trees****, a metaphor Randall says is surfacing in lots of women's writing. Not all of the long reviews are as elegant as Randall's, but they're all worthwhile reading.*

—Jeanne Carstensen

The Women's Review of Books
Human Comedy
Belles Lettres

The Women's Review of Books
Linda Gardiner, Editor
$15/year
(11 issues) from:
The Women's Review
of Books
Wellesley College Center
for Research on Women
Wellesley, MA 02181

Belles Lettres
Janet Palmer Mullaney,
Editor
$15/year
(6 issues) from:
Belles Lettres
P. O. Box 987
Arlington, VA 22216

•

[*Te Kaihau/The Windeater* by Keri Hulme] speaks "fresh from mothertongue" in vital insistent voices — "clean, new, untrammeled" — unrestrained by narrative forms and unshackled by demands of traditional realism. Hulme, a New Zealander of Maori descent, won England's prestigious Booker Prize in 1985 for her novel *The Bone People. Te Kaihau/The Windeater,* written over the past ten years, is a suitable follow-up. It is a courageous, imaginative work, full of the beauties and wonders of nature, touched with the disorienting strangeness of fantasy. Hulme tells stories with the power of Maori oral, folk tradition, yet skillfully addresses an international audience.

The writer's skill is most evident in the vitality of the characters she invents, the narrative voices that demand attention. "Kaibutsu-San," the first story of the collection, begins, "What I heard was this: 'Lissen lissen hey man lissen.'" The second story, "Swansong," insists "I'm not concussed, I'm not. Look, *listen*. You're the one who wants to hear about her." And suddenly you are. Although the voices are sometimes more gentle, they are never less compelling. Most memorable, perhaps, is a father who chronicles the pain that pulls his family apart in "Hooks and Feelers," the story of a mother who accidentally slams her son's hand in a car door, maiming him. (This story won the Katherine Mansfield Award.)

—Belles Lettres

Heresies

This is the kind of magazine you can read in any order. The plentiful, playful graphics tumble you into a world of stories, ideas, paintings, theories, tirades, photographs, and collages on a special theme. Although the Heresies Collective takes on serious feminist subjects like aging, the function of community art, sexuality, and ecology — all through the perspective of feminist art — they avoid being didactic by publishing lots of different voices, usually first-person. They say of the magazine, "It will be a place where diversity can be articulated." That makes ***Heresies*** *one of the liveliest feminist publications out there.* *—Jeanne Carstensen*

Heresies
$17/2 years
(4 issues) from:
Heresies
P. O. Box 1306
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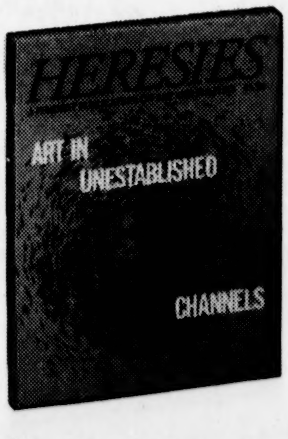

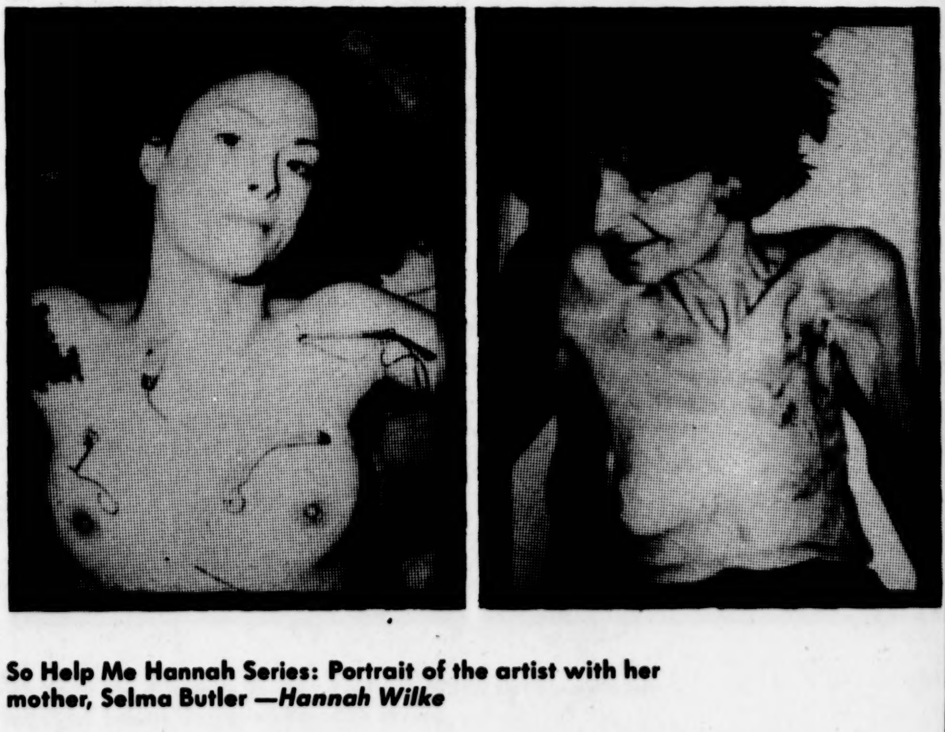

So Help Me Hannah Series: Portrait of the artist with her mother, Selma Butler —*Hannah Wilke*

woman of power Magazine

I was skeptical the first time I saw ***woman of power****. The name itself conjured up uncomfortable images of women attempting to prove their sexual, spiritual and political virility. A lotta talk, little action. Wrong. That image was quickly dispelled after opening it up and seeing people much like me — women whose lives are the tools they use in transforming this emotionally anemic society into one that cares about itself. One of the stories I liked best is about how the women of Nigeria would sing and dance all day and night in front of a man's house whose politics they were protesting. "Sitting on a man" was what they called it, and sometimes they'd resort to tearing down his roof until he promised to cooperate. This process of collective empowerment happens in a variety of ways and places. When the Co-Madres headquarters in San Salvador was bombed, they occupied the National Cathedral. On the other side of the planet, the Shibokusa women of Japan are in the habit of disrupting local military exercises. The spirit that moves these women also moves through the pages of this magazine, stopping along the way to celebrate events like exploring caves in the Mediterranean or communicating with gorillas. These are voices of the feminist counter-culture unabashedly rejoicing in itself and the belief that all life is interconnected and sacred.*

—Lori Woolpert

Shibokusa women protesting near Mount Fuji.

woman of power

woman of power
Char McKee, Editor
$22/year
(4 issues) from:
Woman of Power, Inc.
P. O. Box 827
Cambridge, MA 02238
617/625-7885

Calyx • Ikon • Florilegia

Both of these journals publish poems, essays, fiction, and art. Both are international in perspective, although the majority of work is from the U.S. If I had to try and summarize the wide-ranging themes in ***Calyx*** *and* ***Ikon*** *I'd simply say "the affirmation of women's experience," which means everything from loneliness, relationships, and the struggles of daily life, to sexual ecstasy, political battle, and feminist philosophy. This affirmation does not mean a sacrifice in quality. Standards are high.*

Calyx*, founded in 1976, recently published a superb 12-year retrospective issue called* ***Florilegia****. I think of the intoxication of a third-world market, where everywhere you look there's action and color, sounds and smells. Only* ***Florilegia*** *is twelve years of market at once, so you can hear a decade of women's stories reflecting back and forth on each other — "the creative thinking of a female consciousness," the editors say. Follow its continual expression in* ***Calyx*** *with writers like Sharon Olds, Ursula LeGuin, Marilyn Hacker, and Claribel Alegria, among many others.*

One of my favorite pieces in ***Ikon*** *#8 was a poet's reimagining of the lifestories of the Indian women Pocahontas and Nancy Ward. Author Beth Brant tells of two great diplomats who tried to unite the European and Indian peoples peacefully, instead of the usual tales of beautiful Indian princesses who loved great white men. In another essay, author Kate Millet writes of her childhood admiration of "A.D." — Aunt Dorothy — and her crushing disappointment when A.D. rejects her for being an artist, mentally ill, and a lesbian. I don't recommend either one of these journals over the other. Order one copy of each and decide for yourself, or subscribe to both.*

—Jeanne Carstensen

Two young Igorata guerrillas from the Cordillera, Phillipines.
—Trix Rosen, *Ikon*

Calyx
Margarita Donnelly &
Lisa Domitrovich, Editors
$18/year
(4 issues).

Florilegia
$12
($13.25 postpaid).

Both from:
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Ikon
Susan Sherman, Editor
$10/year
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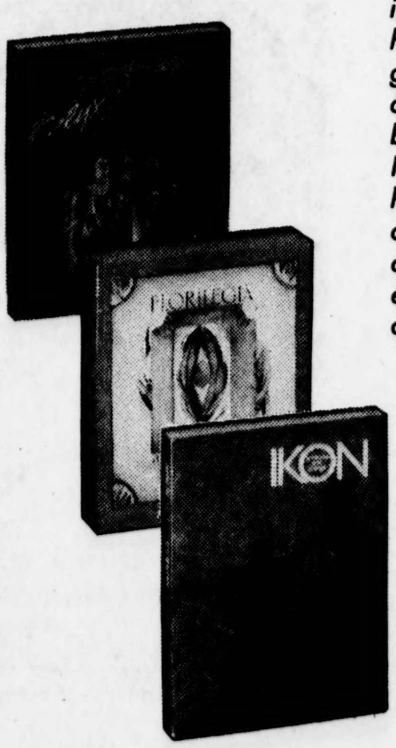
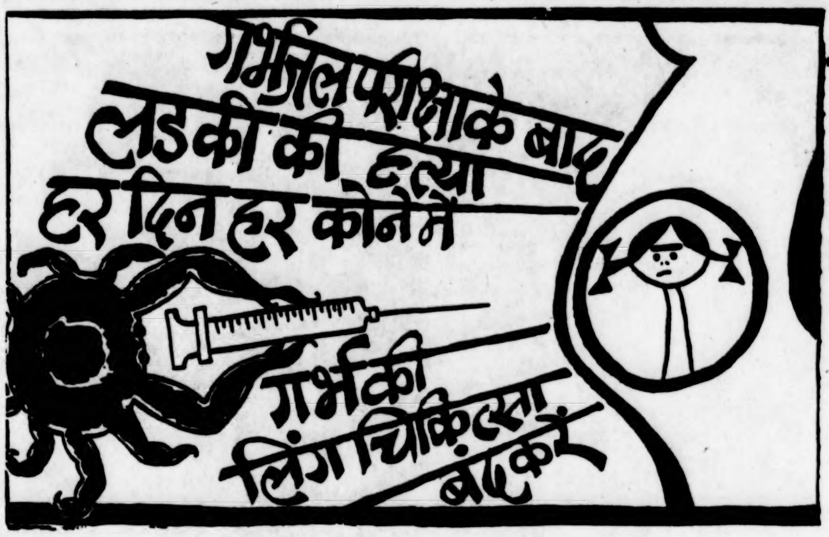


I have lain down and sweated and shaken
and passed blood and feces and water and
slowly alone in the center of a circle I have
passed the new person out
and they have lifted the new person free of the act
and wiped the new person free of that
language of blood like praise all over the body.

I have done what you wanted to do, Walt Whitman,
Allen Ginsberg, I have done this thing,
I and the other women this exceptional
act with the exceptional heroic body,
this giving birth, this glistening verb,
and I am putting my proud American boast
right here with the others.

SHARON OLDS
Vol. 2#2, 1977



"Don't kill your daughter after sex-determination tests. Stop sex-determination tests of fetus in the womb." ***—Connexions***

Connexions
$15/year
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People's Translation Service
4228 Telegraph Avenue
Oakland, CA 94609
415/654-6725

Women's World
$6 postpaid
(per issue) from:
Modern Times Bookstore
968 Valencia Street
San Francisco, CA 94110

Connexions
The Politics of HEALTH
Women's World
AIDS

Connexions • Women's World

In the 1984 book ***Sisterhood is Global (EWEC*** *p. 98), editor Robin Morgan quotes a U.N. report that says, "While women represent half the global population and one-third of the labor force, they receive only one-tenth of the world income and own less than one percent of world property. They are also responsible for two-thirds of all working hours." In response to these and other profound inequities, Morgan called for the rise of women as a world political force. What she called "Planetary Feminism" is happening in these pages.*

Both ***Connexions*** *and* ***Women's World*** *gather reports from the international women's movement. They'll broaden your perspective quickly. Female circumcision is still widely practiced and the movement to eradicate it needs support from women in the developed countries. In India, the burning of wood, dung, and crop residue for cooking inside poorly ventilated homes leads to widespread heart and lung problems in women. Fat women in Britain are organizing to fight prejudice against them in the workplace, media, and medical community.*

Both magazines reveal the necessary unity between women's struggles in the third world and developed countries. All the above examples are part of the larger struggle of women to control their own bodies, for instance. And women around the world bear the brunt of the international debt crisis. These and other "connexions" are explored thoroughly. Both magazines list hard-to-find resource info from other countries plus announcements of conferences and other international news.

—Jeanne Carstensen

•

Amniocentesis is a scientific technique that was intended to be used in detecting genetic abnormalities of a foetus. In India, it is currently being widely used as a means for sex-determination. . . . A recent survey of the slums revealed that when women found out their foetus was female, many chose to abort. . . .

The controversy began a few years ago when the results of several investigative reports were published in popular Indian magazines and journals. Many of the results were horrifying. Of 8,000 abortions following amniocentesis, 7,999 were found to involve female foetuses. In addition, between the years 1978 and 1983, it is estimated that 78,000 female foetuses were aborted after sex-determination tests in India. *—Connexions*

Sinister Wisdom

Here is writing that stays close to the bone. I still feel the influence of one of ***Sinister Wisdom****'s past editors, well-known poet Adrienne Rich, in the clear uncompromising tone of the writing. For three decades Rich has written superbly into the scarcely explored territory of women's and lesbian women's identity, and a generation of writers has followed. The only formula I sense in the writing is honesty, bravery, and a commitment to trust one's own perceptions, a perpetual challenge for all, but especially for women living and working in a patriarchial society. You can still feel the exhilaration, the power, that such honesty generates — not as rhetoric, but as writing with daring excellence.*

A recent issue looks at the cycle of illness/death/mourning/healing. As a 27-year-old woman it's been haunting to find tales of cancer, expecially breast cancer, in just about every publication I read for this survey. The poems, short stories, and journal entries collected in this issue of ***Sinister Wisdom*** *are full of pain and loss: loss of hair, breasts, and physical vitality, loss of lovers and friends, loss of life itself. The writers are by turns angry, sad, violent, resigned, despairing, rejoicing. The issue itself becomes a tool for healing by giving voice and continuity to so much pain. Look to* ***Sinister Wisdom*** *to explore the rawest edges. —Jeanne Carstensen*

Sinister Wisdom
Melanie Kaye/Kantrowitz,
Editor
$17/year
(4 issues) from:
Sinister Wisdom
P. O. Box 3252
Berkeley, CA 94703

SINISTER WISDOM 32

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(Barbara)

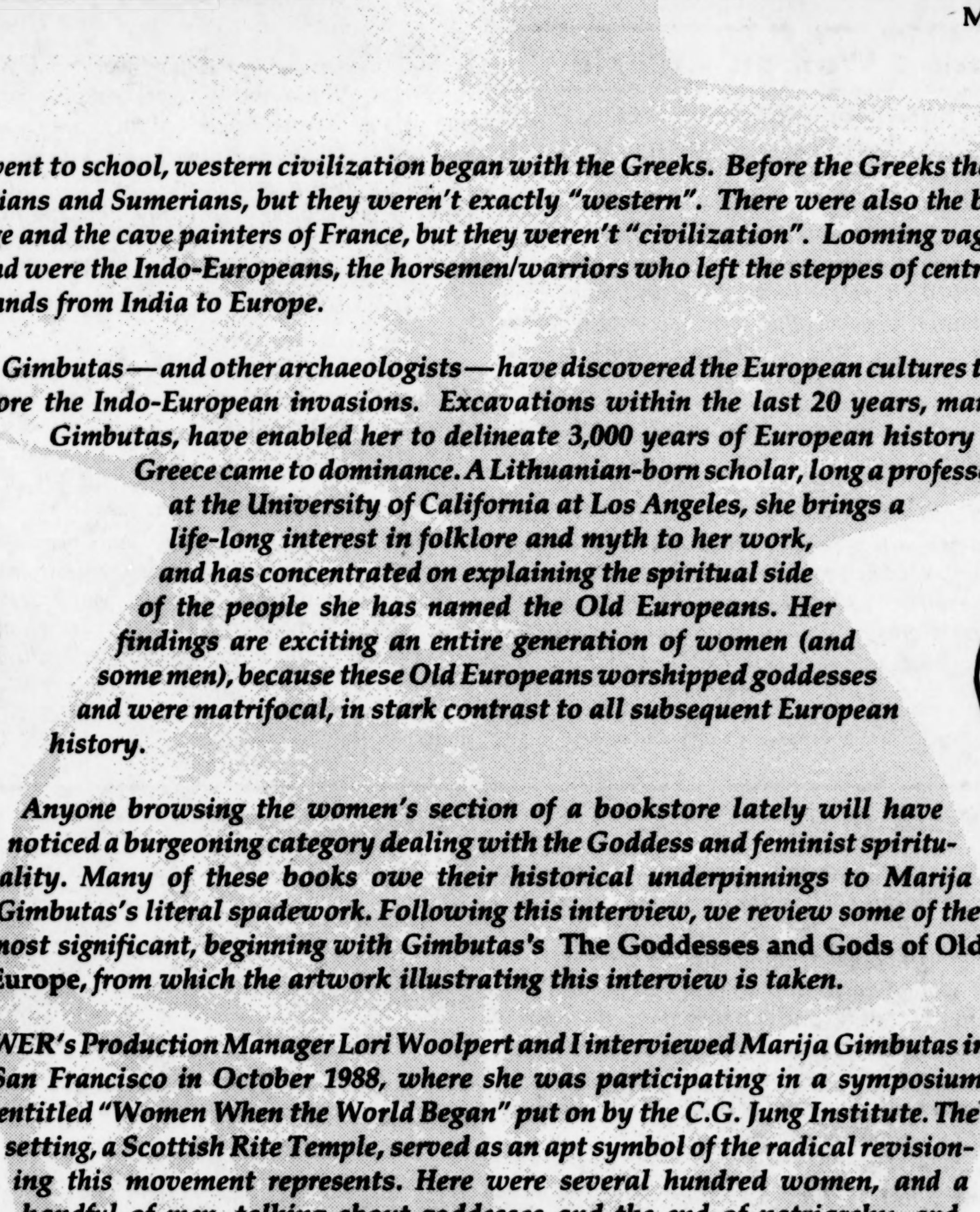
Sandy goes with me for all the tests. We've been together for six years and yet, she sometimes feels like a stranger to me. She has been unusually quiet these last few days of testing. They put me into machines. Sandy sits in a chair nearby watching. She cannot ask them to stop the test, to comfort me. We sit together in waiting rooms, one after the other, with long silences and yellow pads. The only stuff worth talking about is the medical information, it seems. Words about us just hang there, become useless. They are revealed as clumsy instruments of communication, so she and I are mute. Dumb. This woman of so many words, so many verbal styles, presentations, public speeches is mute with me and that is how I know — in part — how deadly serious this is. We cannot use words to build bridges between us, as we have done in the past. We are each trapped in our terror and cannot find our way towards each other.

REDISCOVERING THE GODDESS

An interview with Marija Gimbutas

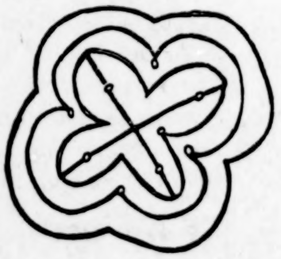
by Richard Nilsen & Lori Woolpert

Marija Gimbutas



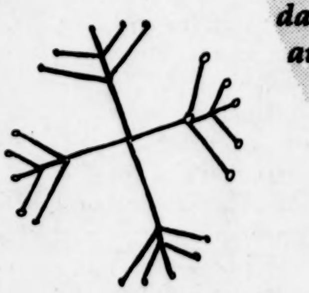
When I went to school, western civilization began with the Greeks. Before the Greeks there were the Egyptians and Sumerians, but they weren't exactly "western". There were also the builders of Stonehenge and the cave painters of France, but they weren't "civilization". Looming vaguely in the background were the Indo-Europeans, the horsemen/warriors who left the steppes of central Asia and invaded lands from India to Europe.

Marija Gimbutas — and other archaeologists — have discovered the European cultures that existed before the Indo-European invasions. Excavations within the last 20 years, many led by Gimbutas, have enabled her to delineate 3,000 years of European history before Greece came to dominance. A Lithuanian-born scholar, long a professor at the University of California at Los Angeles, she brings a life-long interest in folklore and myth to her work, and has concentrated on explaining the spiritual side of the people she has named the Old Europeans. Her findings are exciting an entire generation of women (and some men), because these Old Europeans worshipped goddesses and were matrifocal, in stark contrast to all subsequent European history.



Anyone browsing the women's section of a bookstore lately will have noticed a burgeoning category dealing with the Goddess and feminist spirituality. Many of these books owe their historical underpinnings to Marija Gimbutas's literal spadework. Following this interview, we review some of the most significant, beginning with Gimbutas's **The Goddesses and Gods of Old Europe**, *from which the artwork illustrating this interview is taken.*

WER's Production Manager Lori Woolpert and I interviewed Marija Gimbutas in San Francisco in October 1988, where she was participating in a symposium entitled "Women When the World Began" put on by the C.G. Jung Institute. The setting, a Scottish Rite Temple, served as an apt symbol of the radical revisioning this movement represents. Here were several hundred women, and a handful of men, talking about goddesses and the end of patriarchy, and dancing to the rhythms from two enormous drums, in a huge Masonic auditorium with murals of kings covering the walls.



A world-class scholar used to standing her intellectual ground, Gimbutas, 68, clearly enjoyed this new audience that has discovered her work late in her long career. She spoke precisely, with a musical voice and thick accent, and was both gracious and funny. She had an opportunity to read and correct the interview transcript. We are grateful to Rick Fields and James Yockey for bringing her work to our attention. —Richard Nilsen

RICHARD NILSEN: In pursuing the origins of the Indo-European culture, you discovered an entirely different culture which you call Old Europe?

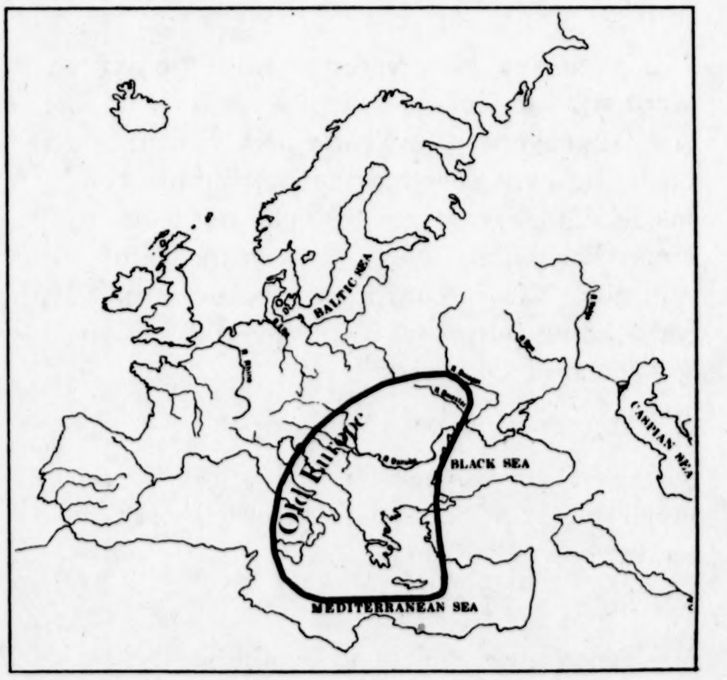
MARIJA GIMBUTAS: "Old Europe" is my own term for the culture which was matrifocal, not patriarchal, non-Indo-European, therefore I am talking about Old Europe *before* the infiltrations of warrior tribes from south Russia. This was the road of my research. I had to answer the question: Who was before the Indo-Europeans? Were they always there? No, this is something else. I started to excavate Neolithic settlements dating from 6500-3500 B.C. in Greece, Italy and Yugoslavia. I excavated for 16 years. It happened that I came across many temples and 500 goddess sculptures and figurines.

RN: Were other archaeologists also exploring at the same time in the same areas?

MG: Yes, of course, there were also other archaeologists. But not all archaeologists were searching for the spirituality of the culture.

LORI WOOLPERT: So certain objects weren't as important to them as they were to you.

MG: There were still, in my generation, archaeologists who were not paying attention to the existence of temples in Old European excavations. One colleague, for instance, had sacrificed the very center of the mound, with many temples one on top of the other, for the sake of extracting a core for stratigraphy. Not all archaeologists, even in the richest areas of the European Neolithic, are able to understand and reconstruct the broken sculptures and figurines that are found. Ninety-five percent of what you find is all fragments.

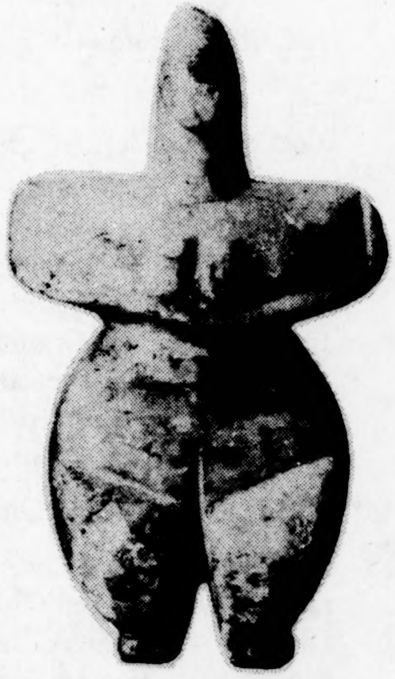


Old Europe c. 7000-3500 B.C.

RN: Many archaeologists refer to these figurines as fertility objects or Venus figurines. You don't. Why is that?

MG: I don't because the Venus is known as a beauty. Venus is a wife of a male god, or beloved by male gods. And the figurines of prehistory, starting with the Paleolithic — about 27-25,000 B.C. — are not beauties. Their bodies are not really what we imagine a Venus to be. These goddess figurines have large breasts and stomachs and buttocks, their heads are not important, their features are not even shown, their legs are like cones.

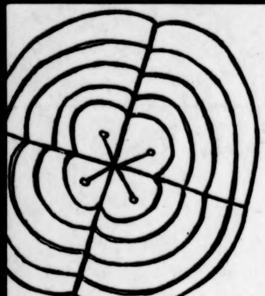
It is wrong to call these figurines "Venus figurines." Their functions were *much* more important than those of a Venus. The functions were life-giving, death-wielding, and regeneration. Not only is the whole body of the goddess shown in sculpture, but also parts of her body, like life-generating vulvas and breasts. Or sculptures and engravings are shown with large buttocks. What are these large buttocks? As I said in my lecture, these are associated with the idea of regeneration. These are the eggs, universal symbols of regeneration.

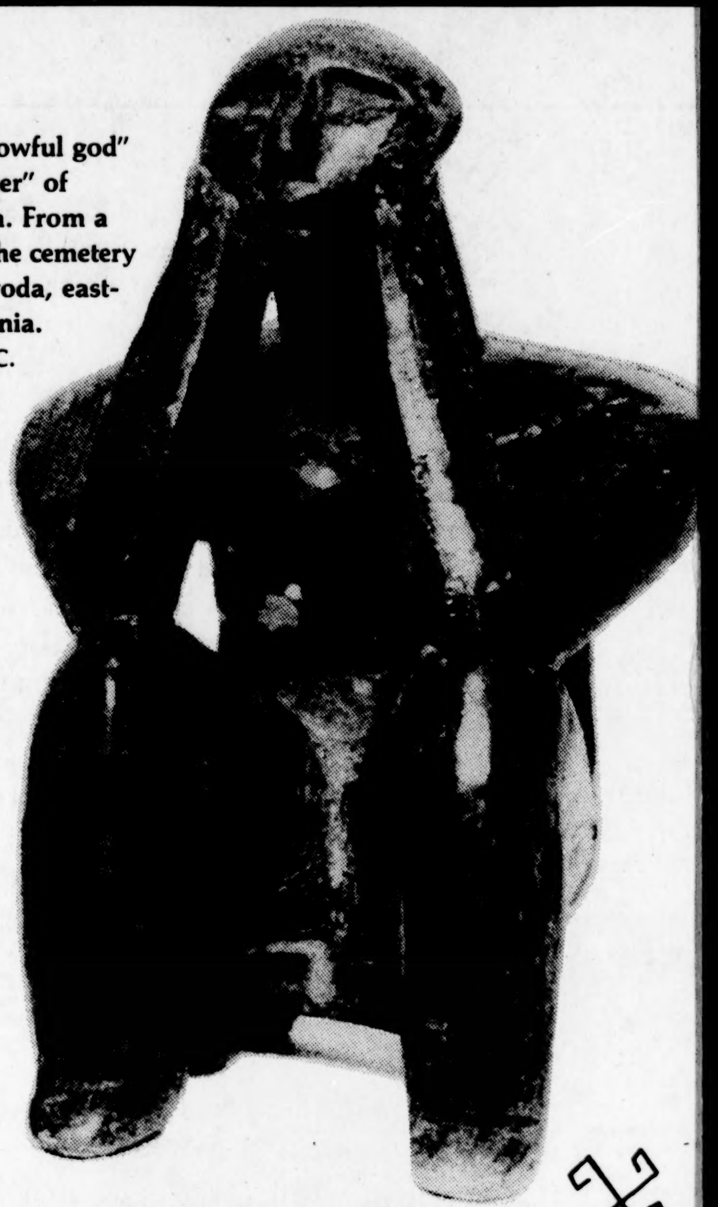


Marble figurine of a goddess with folded arms, columnar neck and a large pubic triangle. Aegean area, exact provenience not known.

RN: Did the people in this time in Old Europe understand conception?

MG: It is difficult to say when they started to understand. I think that in the Neolithic they probably understood because they could observe nature very well. But sometime in the Paleolithic they didn't. In religion ideas are so conservative that even our Virgin Mary is still virgin. We understand conception but she is still there. Very





The "sorrowful god" or "Thinker" of Hamangia. From a grave in the cemetery of Cernavoda, eastern Romania. c. 5000 B.C.

likely the same happened in the Neolithic and the Copper Age. This goddess was creating life from herself without the help of men. So it was believed and so it continues right up to our day.

RN: So there's a goddess in the Paleolithic, 27,000 years B.C. Is it the same goddess that continues through into the Neolithic?

MG: The functions of the goddess continued from the Upper Paleolithic into the Neolithic, that is, into the agricultural era.

RN: And that's when?

MG: We guess around 7000 B.C. in Europe and Anatolia and somewhat earlier in the Near East. We would expect that symbols would change. However, symbols are connected with a social structure. The social structure *didn't* change. The matrifocal social structure continued from the Paleolithic into the Neolithic and therefore the goddesses were still the same. Certain functions and certain postures and gestures of sculptures continued from, say, 25,000 to 5000 B.C. without much change.

RN: Were there any gods in the period of Old Europe or were there goddesses only?

MG: There were gods also.

LW: Sun gods?

MG: No sun gods; these gods are associated with the wild and cultivated vegetation especially. I was showing one today, do you remember, I called him a sorrowful god. I think he's a portrayal of dying vegetation. He has to die with the vegetation. And there are several other types. I think that there existed a master of animals and forests and he was worshipped in the wild from the Paleolithic times and continued throughout history.

RN: Does he become Dionysus in Greece?

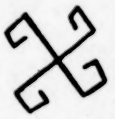
MG: Dionysus and Linos, the flax god, are certainly inherited from Old Europe. The Greek god Pan also — Romans called him Sylvanus. Pan was an important god and I think he was straight from Paleolithic times.

RN: What percentage of the objects found are female and what percentage are male?

MG: At Achilleion I found 204 figurines — only two were male. The majority is clearly female. One to three percent are male.

RN: What's the junction between the Paleolithic and the Neolithic in years?

MG: 7000-6500 B.C. is the beginning of the Neolithic in southeastern Europe. The beginning of the Upper Paleolithic is around 40,000-35,000 B.C., when there was an explosion in art, when cave paintings and sculptures appeared. But there are only about 3,000 sculptures from the Upper Paleolithic, whereas from the Neolithic there are at least 30,000-40,000. In spite of large numbers of sculptures and painted or engraved symbols on ceramics, archaeologists didn't pay enough attention to religious symbols. Instead, the emphasis was on tools — axes, adzes, and knives.



LW: Do you think the written word had anything to do with the forgetting of the goddess symbols as religious?

MG: Well, yes. However, instead of the written word our ancestors had symbols and signs. The sign language was very early and we cannot decipher it. Signs developed from symbols. For instance, the sign of the bird goddess exists from Upper Paleolithic times — a V. In the sixth millenium B.C. in Europe there was a script used for religious purposes. It continued to be used to the end of Old Europe.

RN: What period was Old Europe?

MG: Well, it was from the first half of the seventh millenium to the middle of the fourth millenium B.C.

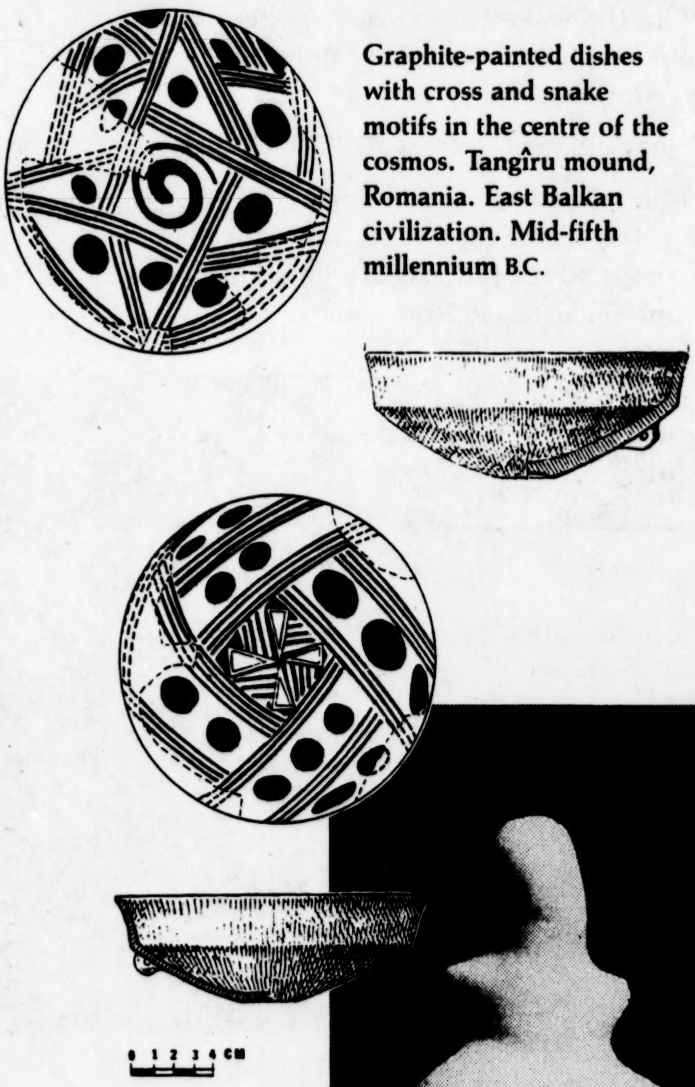
RN: So 6500-3500 B.C.?

MG: Yes, roughly in round numbers.

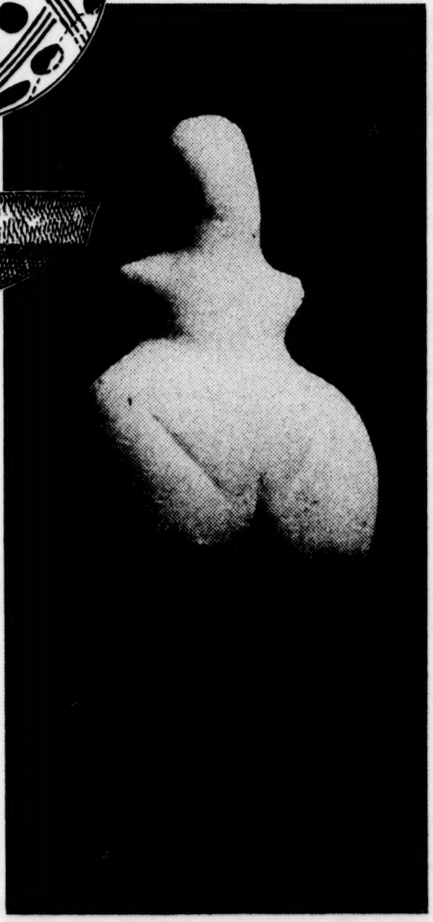
RN: So these people had agriculture and were settled?

MG: Yes, were settled and *developed* agriculture, around the seventh millenium onward. The temple-building started in the seventh millenium. I discovered at Achilleion — this is northern Greece — one temple above another. They were in the shape of houses, like, say, this room divided into two rooms and one room was a workshop and the other was a real temple with an altar and sculptures. In the workshop they prepared ritual objects. They made sculptures and beautiful painted pottery.

RN: When were ceramics invented?



Graphite-painted dishes with cross and snake motifs in the centre of the cosmos. Tangîru mound, Romania. East Balkan civilization. Mid-fifth millennium B.C.



Marble figurine with exaggerated pubic triangle and schematized arms. Tell Azmak, central Bulgaria. Early sixth millenium B.C.

MG: In Europe, it's around 6500 B.C. Maybe somewhat earlier, but the earliest ceramics were of a poor quality; they dissolved in water. I think that the earliest vases were ritual vases. They didn't use them for cooking. Around 6000 B.C., the pottery became extremely fine, and in the fifth millenium the painted pottery in southeast Europe was as thin as porcelain. The symbolic design became increasingly complex.

RN: Was the culture of Old Europe happening throughout Europe or just in southeastern Europe?

MG: Throughout Europe, but the focus was in the southeast. From the southeast it continues into central Europe. The whole Mediterranean region is interconnected because of communication by water. Around the Adriatic Sea, the culture is very similar on both sides, Yugoslavia and Italy. On the islands of Malta and Sardinia there were many temples and underground tombs discovered. Western Europe is famous for its megalithic tomb-shrines. The goddesses worshipped and religious symbols were the same in west, central, and southeast Europe.

LW: Is it possible the Indo-Europeans and Old Europeans were practicing their two different cultures right alongside each other?

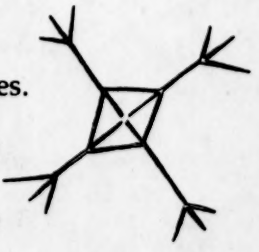
MG: Correct. For millenia, there existed two different social and symbolic structures. Before the Indo-Europeans domesticated the horse, they hardly knew of each other at all. Then, they domesticated the horse, and became mobile people. The horse was probably the most important thing for their expansion. The huge herds had to be controlled by the man, and I think this was the primary cause why patriarchy became established.

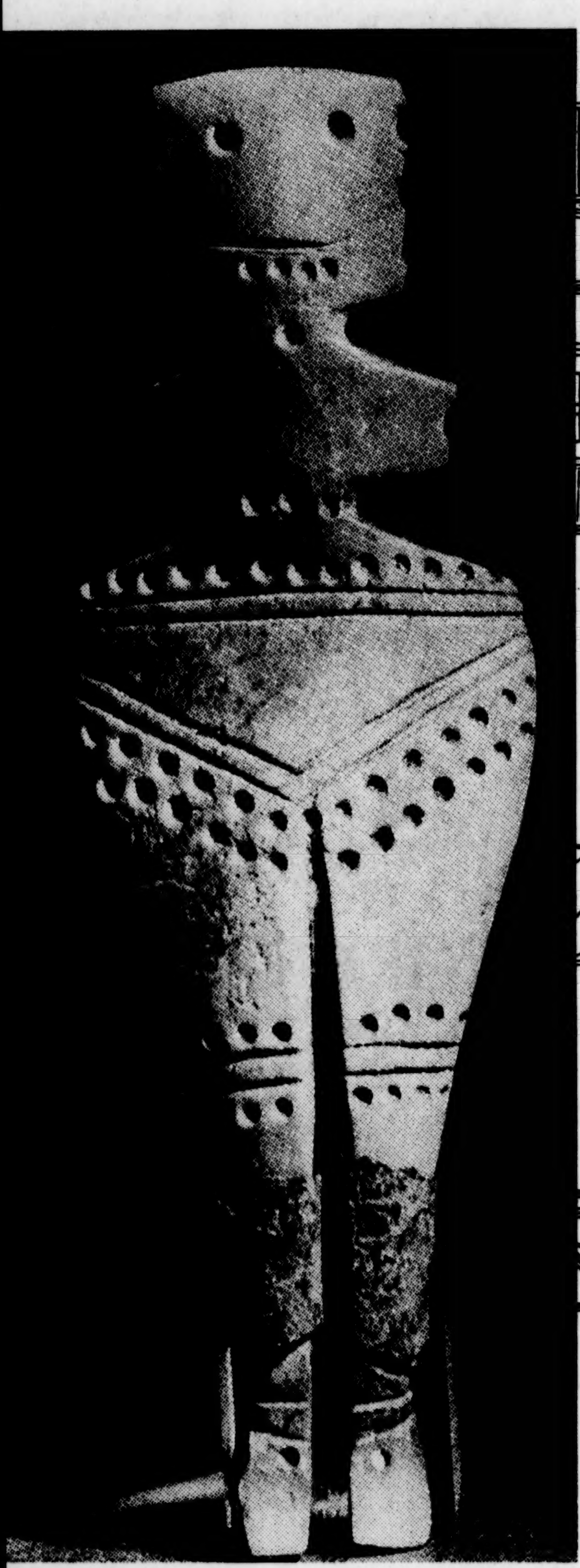
As soon as they were riding horses — they were riding horses as early as 5000-4500 B.C. — the trade started over distances as great as 1,200 miles. At the end of the fifth millenium B.C., the Proto-Indo-Europeans, or "Kurgan people," started to move, first around the Black Sea coast to the west, then to the Danube Valley. *["Kurgan" is Russian for "burial mound," a distinctive archaeological feature of these Proto-Indo-European people. —RN]* Then it took another 1,000 years, when more influence came from the east. And then, around 3000 B.C., a *massive* infiltration.

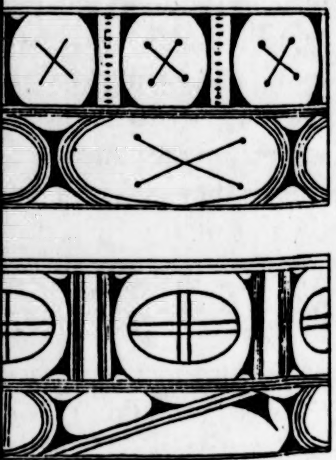
In the west, the European people were agriculturalists. They had all sorts of cereals and domesticated animals, but they had no horses.

RN: Can you tell us about the folk mythology you grew up with in Lithuania? In your lecture you alluded to rituals in the sauna, and to snakes.

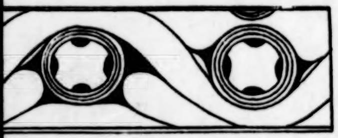
MG: Around 1950, there were still birth rituals taking place in the sauna. There were women who gave birth in saunas, not in hospitals. The

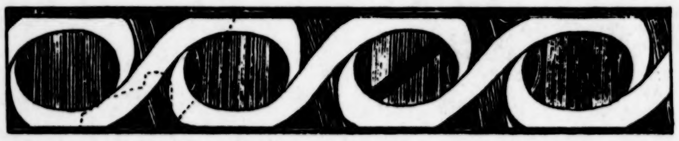


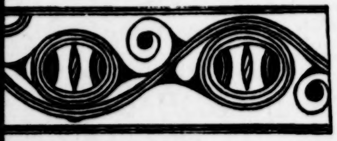




(Above)
Quartered egg and disc motifs on black-on-red-painted Late Cucuteni vases from Sipintsi, western Ukraine. Mid-fourth millenium B.C.

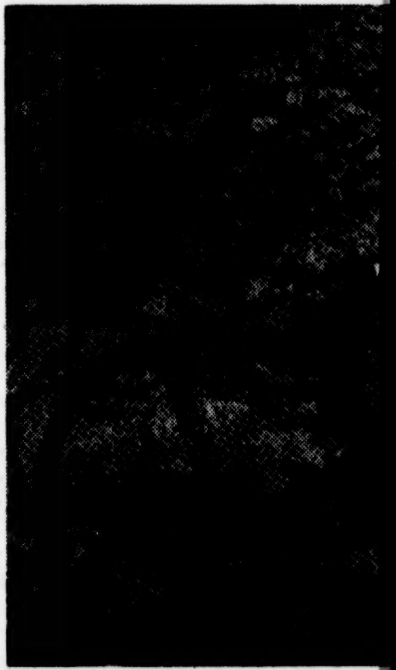






(Left)
Triangle-figured flat bone figurine from Lovets near Stara Zagora, Bulgaria. East Balkan civilization. *c.* 4500-4000 B.C.

(Above)
Cosmic snake and cosmic egg compositions painted on Late Cucuteni vases from Sipintsi, western Ukraine, *c.* mid-fourth millenium B.C.



grandmother took care of the ceremony and gifts were brought to the goddess Laima, the Fate. She is still alive there and she appears at the birth of a human being. She is the destiny. She decides how long this person will live and what life he will have.

LW: Is the child told?

MG: The mother is told what will happen to the child. There is also the death image. Fate's sister is death, still very much feared. The white lady.

RN: She is white and not black?

MG: She is white — death was white. The opposite to Semitic and Indo-European religions where death is black and death is male. Here it's a woman, a lady. Sometimes a beautiful girl dressed in white walks through the village and people are afraid because this is a sign someone will die. Sometimes a group of white-dressed girls are going, and a person thinks,"where are they going? Oh — to *that* village, where the child is sick, so the child will die."

RN: What do the brides wear? Do they dress in white for their weddings?

MG: Now yes, but not earlier. They wore national costumes, very colorful. So now marriage means death *[laughing]*.

RN: Can you say a little bit about the snakes?

MG: Oh, the snakes! Fifty years ago they were still important. They were kept in houses, under the foundations, and fed.

LW: What did they feed them?

MG: Milk. And in the beginning of the year, which is the beginning of the season, they had tables prepared for the snakes with many dishes, and if the snake tasted from some of the dishes, it meant a good sign, the year would be lucky. The life energy appears and it will grow and blossom throughout the year. This is the main meaning of the snake — the life energy. The snake is also the ancestor, living in the house — the link between the past and the future. The souls are incarnated in snakes, and birds.

LW: Do you think it's important for us to look at animals as deities also, like the goddess?

MG: I think we should try to understand ancient symbols, and not regard the snake as a dreaded creature. It is an interesting creature, full of energy and regenerating — throwing its old skin and growing another new skin. This symbolizes a seasonal cycle. We should have some of these symbols in our lives and that would make our lives more meaningful.

RN: Archaeology deals with tantalizing fragments and attempts to re-create with them as complete a picture as possible. But it is a science, not an art. I'm wondering what are the limits to what can be inferred, and how can you tell if you've gone too far in drawing conclusions?

MG: Well, this has to do with your intuition and experience. Just like an art creation, you must feel that you are right in what you are saying. In science, you always feel that what you say is based on a *lot* of evidence and you must reach a level where you can say that and be certain it is so. This depends on how much literature you read, how much you excavate yourself, and how much intuition you have. And how much you study and draw from other fields.

You have to be an interdisciplinary scholar. Without the knowledge of physical sciences, without the knowledge of humanities, don't be an archaeologist, or you are just a simple soldier — just a workman.

RN: What do you think of what other people are doing with your work, and the conclusions they're drawing about goddesses in present culture? There are so many books out there.

MG: Well, yes, I know that I'm feeding a whole generation. There are many writers who are taking a lot of material from my books. A great number of artists all over the country are painting or sculpturing goddesses, taking examples from the illustrations in my book.

RN: Most of the authors are not archaeologists. Do their conclusions bother you in any way?

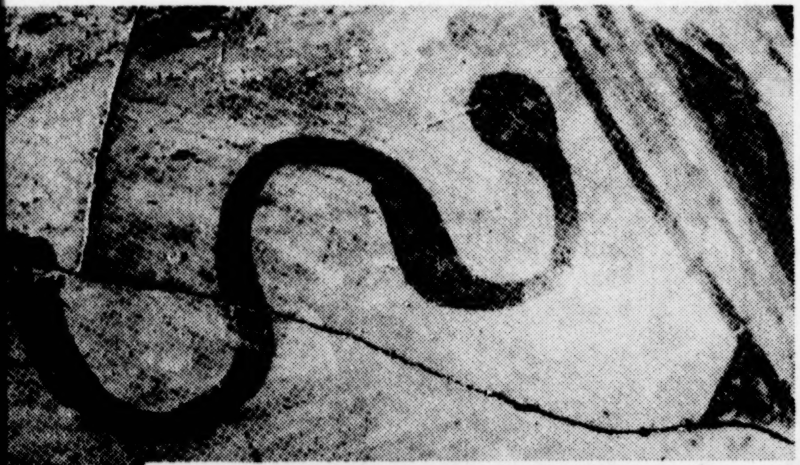
MG: In some, yes, yes. But I try to correct them. I have corrected several manuscripts.

RN: Do you still go out on digs?

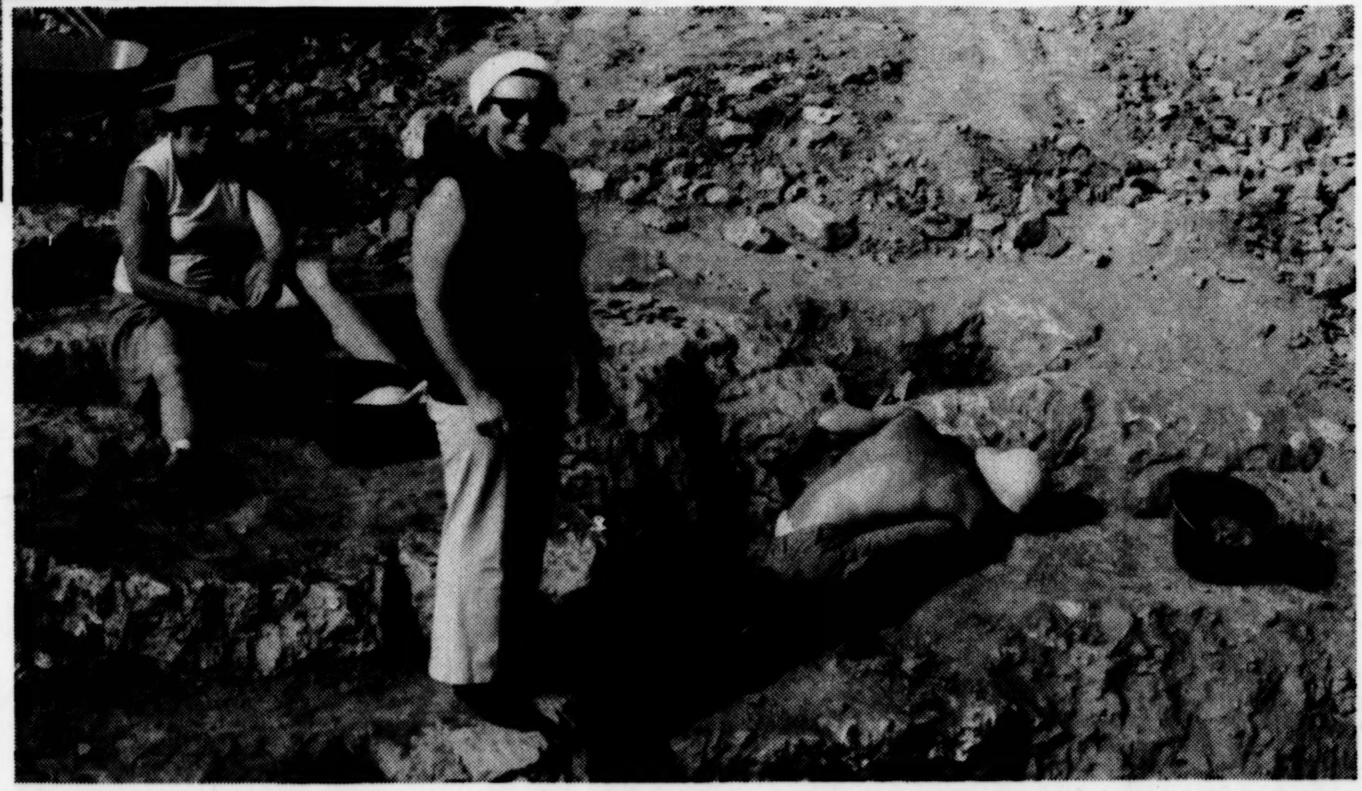
MG: Right now, no, because I have too many contracts for books. Too many lectures.

RN: Do you miss that part of it?

MG: No, because I know that an excavation is a very long process. Without having 20 years ahead, better don't start. ■



Painted snake on a Late Cucuteni vase from Bilcze Zlote (detail). First half of fourth millenium B.C.



Marija Gimbutas (standing) with crew, excavating the sixth millenium B.C. Scaloria Cave site in southeastern Italy, 1979.

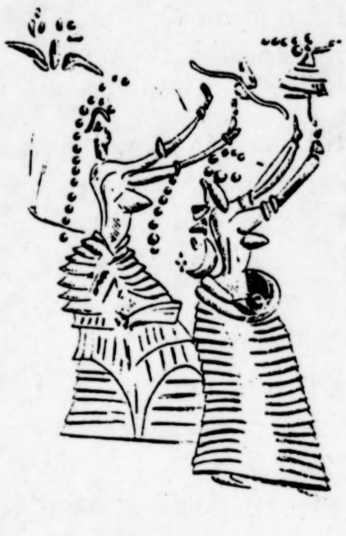
The Goddesses and Gods of Old Europe

The most accessible of Marija Gimbutas's works, this book is a handsome combination of text and striking black-and-white photographs and line drawings. A telling example of the book's reception in our gender-biased society concerns the title: when originally published in England in 1974, Gimbutas was forced to reverse her title to ***The Gods and Goddesses . . .****, even though the preponderance of objects discovered have been female. It was only with a second, American edition in 1982 that she was allowed to restore her original title.*

The civilization of Old Europe, existing from 6500 to 3500 B.C., was discovered and named by Gimbutas. This is a riveting exposition of its religious beliefs through an analysis of ritual art objects. The ceramic inventiveness displayed is inspiring artists today. There is something strangely evocative about these images, zapping their humanity (and divinity) across seven millenia. It's a unique window into European prehistory, and a browse here will surprise anyone used to dismissing the art from this era as "primitive." —*Richard Nilsen*

[Suggested by James Yockey]

THE GODDESSES AND GODS OF OLD EUROPE



Detail of the gold ring of Isopata (c. 1500 B.C.).

The Goddesses and Gods of Old Europe
Marija Gimbutas
1982; 304 pp.
$15.95
($17.45 postpaid) from:
University of California Press
2120 Berkeley Way
Berkeley, CA 94720
800/822-6657
or Whole Earth Access

●

Excavation of Neolithic sites has yielded numerous 'bumpy' figurines, often little more than two centimetres long, which archaeologists classify only as indeterminate or ambiguous objects. Examined as isolated, individual pieces they remain enigmatic, their role unknown; but once we identify these miniatures as belonging to a single homogeneous group of figures, they can be recognized. . . . The sculptor was not striving for aesthetic effects; he was producing sculptural 'shorthand', an abstract symbolic conceptual art, images that were emblematic of the divine regardless of the extent of their schematization. . . .

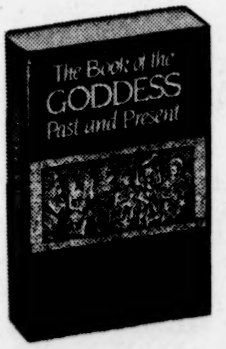
Sculptural 'shorthand', unthinking and repetitive, illustrates the conservative nature of the tradition within which the sculptor worked; each culture translates its basic explanatory assumptions into equivalent form structures and creativity is only expressed in subtle variations from the socially prescribed norms. For the socio-cultural historian it is more important to examine the conventional than the few and slight deviations from it, since his work is to comprehend the inherited and collective — rather than the individual — psyche.

The Book of the Goddess

"Myth, Legend and Fantasy" was one of the most popular classes in the English department when I was in high school. I champed at the bit to get in and when I did I absorbed everything I read about Hera, Aphrodite, Persephone and Artemis. Yet we never heard anything about Amaterasu, Ishtar, Nulirahak or Kali. Now there is ***The Book of the Goddess****, an introduction to greater and lesser-known goddesses from around the world. Olson provides an overview of various cultures that continue to perceive the divine as female, such as the Egyptian, Japanese, Native American, Hebrew and Gnostic manifestations. Christianity is far from ignored, with penetrating essays on "The Virgin Mary: A Goddess" and "Symbols of God and Goddess in Feminist Theology." Most importantly, few goddess religions covered here cancel out the existence of male divinities and most give credence to the belief in the earth as a living organism.*

Although this book was created out of need for a textbook for Olson's religious-history students, it carries none of the dry, academic jargon usually associated with college texts. In addition, ***The Book of the Goddess*** *doesn't force-feed any belief system based on what Olson calls "the second coming of the goddess." Interpretations are graciously left up to the reader.* —*Lori Woolpert*

The Book of the Goddess
(Past and Present)
Carl Olson
1983; 261 pp.
$12.95
($14.95 postpaid) from:
Crossroad Publishing Co.
J. P. Lippincott
P. O. Box 1535
Hagerstown, MD 21741
800/638-3030
or Whole Earth Access



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The first celebration of Amaterasu at Ise is recorded as follows: "When the princess-priestess Yamato-hime reached Taki, a sister and brother named Kishi-hime and Kishi-hiko dedicated the grove to sanctify Amaterasu together with rice fields and hemp fields. . . . they brought fresh shellfish for sacrifice to Amaterasu." This account shows that Amaterasu was present in the grove or in a tree and that sacrifices were offered to it, and that this region was ruled by a sister and brother. It is generally known that Amaterasu's symbol is the mirror, one of the sacred regalia; Amaterasu said to her grandson Ninigi at the time of his descent to earth that he should venerate the mirror as herself. To be exact, however, the mirror is a symbol of imperial sovereignty and not of the deity. The traditional way of sanctifying the divine is to set up a tree in a hedge or fix one in a grove, as noted above, to invite the divine onto it and then to offer sacrifices. When the princess sanctified Yamato and other frontier spots, she followed the tradition; the temporary sanctuary is encircled with hedges or rocks and the evergreen tree stands in the center. The sacred tree is the object of veneration since the divine is present in it. This tradition has survived at older shrines where worshipers' veneration is directed to the sacred grove behind the shrine building. At the Shrine of Ise, however, it persisted in the form of the sacred pillar even after the introduction of the mirror as a symbol, although in many newer shrines the mirror replaced the tree or pillar.

The Woman's Encyclopedia of Myths and Secrets • The Woman's Dictionary of Symbols and Sacred Objects

It is curious that so many scholars who stumble upon the underground history of the Goddess end up some decades later with books so fat one can hardly lift them. This was true for early male scholars like Bachofen, Briffault and Graves, and is true for their feminist redactors. Merlin Stone spent some 20 years combing the artifactual record, as did Elise Boulding and Evelyn Reed with the historical and anthropological data. The difference between Barbara Walker's ***Woman's Encyclopedia of Myths and Secrets*** *(another fatty) and the others is that this one is written and organized in a way that is accessible and just plain fun. It possesses an impressive bibliography, is cross-referenced extensively with informative notes in the margins, and has some 1,300 entries alphabetically arranged.* —*James Yockey*

Barbara Walker's ***Woman's Dictionary of Symbols and Sacred Objects*** *is certainly not intended to replace her massive* ***Encyclopedia****, but for anyone visually inclined, this is the better place to start. There is some duplication between the two, but the* ***Dictionary*** *is more about things than people, and the things are organized into 21 sections and indexed alphabetically. And illustrated, by small drawings that run across the tops of the pages. Flipping through the pages till a picture catches your eye and then reading the entry is an enjoyable way to use this book. Both of these books are the sort you pick up for a glance, and later realize an hour has slipped by.* —*Richard Nilsen*

●

Allah

Late Islamic masculinization of the Arabian Goddess, Al-Lat or Al-Ilat — the Allatu of the Babylonians — formerly worshipped at the Kaaba in Mecca. It has been shown that "the Allah of Islam" was a male transformation of "the primitive lunar deity of Arabia." Her ancient symbol the crescent moon still appears on Islamic flags, even though modern Moslems no longer admit any feminine symbolism whatever connected with the wholly patriarchal Allah. —*Myths and Secrets*

●

Scarecrow

It is well known that scarecrows don't scare crows, or any other birds. But the custom of setting up the effigy of a man on a wooden cross, as a magical protection for fields, has been practiced from remote antiquity. The original scarecrow seems to have been an actual sacrifice in prehistoric times. Later, the sacrificial god-man was dismembered, like Osiris, and pieces of his flesh or blood were distributed to all the fields of the land to encourage the crops.

Sacrifice of a god-man for the sake of fertility, usually in the spring, was a common event long before Christianity came along to claim that its own sacrificed god-man was unique.

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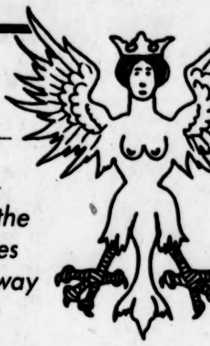
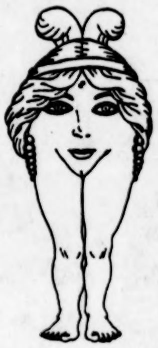
Cock

It is no coincidence that "cock" is slang for "penis." The cock was a phallic totem in Roman and medieval sculptures showing cocks somehow transformed into, or supporting, human penises. . . . Hidden in the treasury of the Vatican is a bronze image of a cock with the head of a penis on the torso of a man, the pedestal inscribed "The Savior of the World." —*Symbols and Sacred Objects*

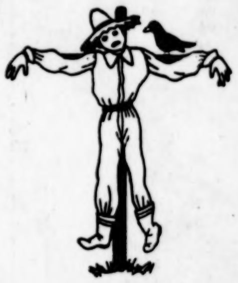
HARPY
from the Nuremberg Arms



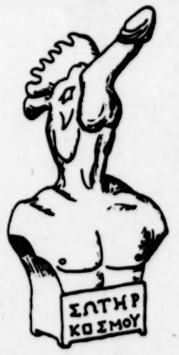
BAUBO



SCARECROW



COCK
from a Roman sculpture

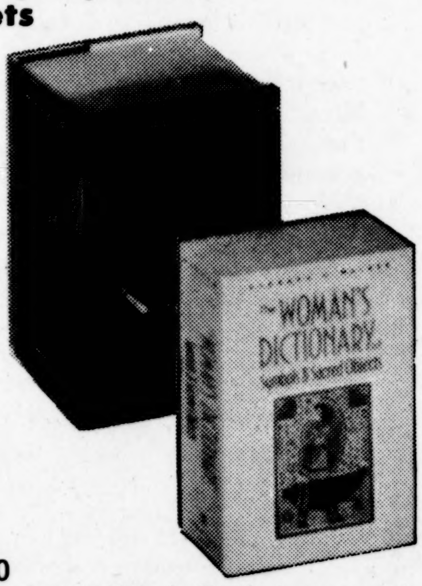


Illustrations from *Symbols and Sacred Objects*.

The Woman's Encyclopedia of Myths and Secrets
Barbara G. Walker
1983; 1,123 pp.
$22.95
($24.45 postpaid).

The Woman's Dictionary of Symbols and Sacred Objects
Barbara G. Walker
1988; 563 pp.
$19.95
($21.45 postpaid).

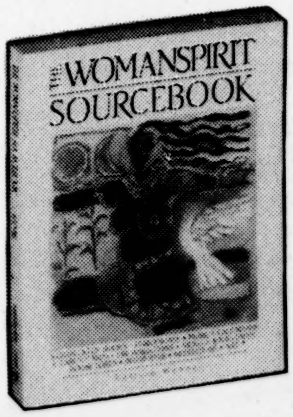
Both from:
Harper & Row
Rt. 3, Box 20B
Hagerstown, MD 21740
800/638-3030
or Whole Earth Access

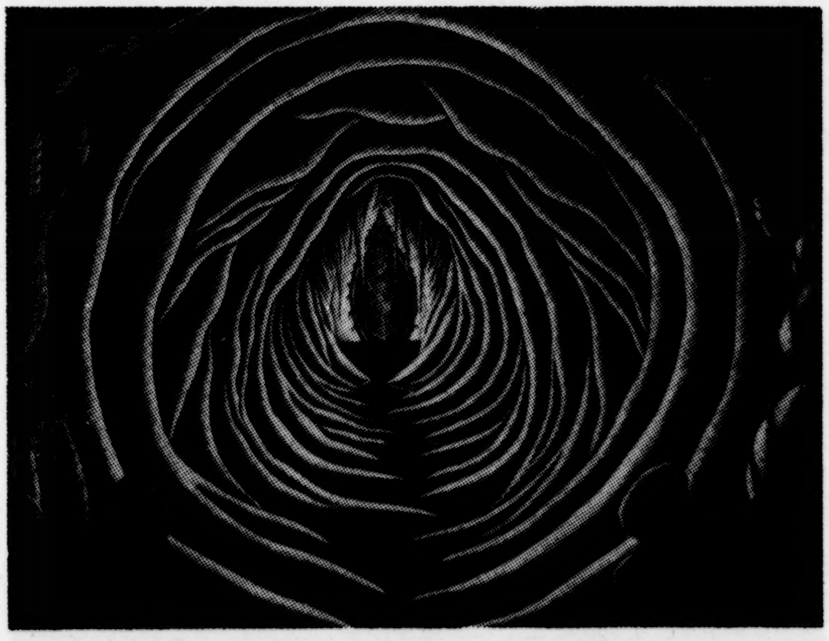


The Womanspirit Sourcebook

The ***Sourcebook*** *lists almost a thousand books, periodicals, cassettes, occult paraphernalia, calendars, film and video resources, meditations, interviews, women's bookstores, networking resources and organizations etc., sort of like a* ***Whole Earth Catalog*** *of feminist spirituality and literature. The entries are short enough to be easily scanned, and long enough to convey real information. I am pleased to say that this catalog fills a real need with refreshing competence.* —*Adam Phillips*

The Womanspirit Sourcebook
Patrice Wynne
1988; 277 pp.
$16.95
($18.45 postpaid) from:
Harper & Row
Rt. 3, Box 20B
Hagerstown, MD 21740
800/638-3030
or Whole Earth Access





***Passage*, Aline Lapierre, 1983.**

Webster's First New Intergalactic Wickedary

Reading Mary Daly is guaranteed to be either radicalizing or revolting. Her work is a tossed gauntlet. It takes a long time afterward to be able not to notice the pervasive evidence of the conscious and unconscious woman-hating she exposes.

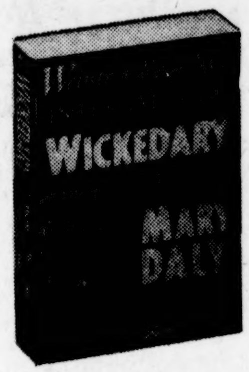
***Wickedary** is what happens when a radical feminist keeps on traveling **Beyond God the Father**, through **Gyn/Ecology [NWEC** p. 388], and out past **Pure Lust**. Now when Daly minces words, it is to fling the result in the faces of "fundamentalists," "godfathers," "hacks," "hucksters," "jerks," "jocks," "lackeys," and "leeches," among others. **The Intergalactic Wickedary** is hilariously antiphallic, and not for wilters of either sex.*

*The point of the **Wickedary** is that our minds have been so thoroughly conditioned by patriarchy that it is necessary to wipe the slate clean and begin afresh, starting with our very language. The effect is to shatter the linguistic links in the chains of slave mentality that have fettered women.*

*That the **Wickedary** was conjured by a couple of Furies who began their Metamorphoses as serious academics shows. The book is woven with careful crone- and etymologic. There is a great power of thought here, along with dazzling rushes of poetic vision, shameless punning, and a witty reclaiming of such vocabulary as Prude, Shrew, Bitch, Hag, Old Maid, and Nag.*

*However you choose to react to the hilarious hostility to Him, you shouldn't miss the **Wickedary**. It is a creative work of utter originality and brilliance, a multidimensional revolutionary Magick.* —*Stephanie Mills*

***Dryad:** Tree spirit who listens, teaches, inspires, encourages.*



Webster's First New Intergalactic Wickedary of the English Language
Mary Daly and Jane Caputi
1987; 310 pp.
$14.95
($15.95 postpaid) from:
Beacon Press
Harper and Row
Keystone Industrial Park
Scranton, PA 18512
800/242-7737

or Whole Earth Access

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Bitchy *adj* : having the threatening characteristics of a female canine (a wolf, dingo, coyote, wild dog, fox) applied esp. to a woman who is active, direct, blunt, obnoxious, competent, loud-mouthed, independent, stubborn, demanding, achieving, overwhelming, Lusty, strong-minded, scary, ambitious, tough, brassy, boisterous, turbulent, sprawling, strident, striding, and large (physically and/or psychically). *Canny Comment:*

> Bitches are good examples of how women can be strong enough to survive even the rigid, punitive socialization of our society. As young girls it never quite penetrated their consciousness that women were supposed to be inferior to men in any but the mother/helpmate role. They asserted themselves as children and never really internalized the slave style of wheedling and cajolery which is called feminine. . . . All Bitches refused, in mind and spirit, to conform to the idea that there were limits on what they could be and do. —Joreen, "The Bitch Manifesto"

•

fembot *n* : female robot: the archetypical role model forced upon women throughout fatherland: the unstated goal/end of socialization into patriarchal womanhood: the totaled woman. *See* **totaled woman**

Truth or Dare

*If you want to begin to understand what "revolutionary" means, read this book. Developing further the ideas in her first two books — **The Spiral Dance** and **Dreaming the Dark (EWEC** p. 99) — Starhawk dares the reader to embody change. Her clear-headed synthesis of paganism, group dynamics, social activism, and psychology builds a worldview based on the immanent value of all life. The ascendance of the sky-god and patriarchal culture — i.e., hierarchy — denied immanence through worship of a single "God" who was outside the material plane of existence. This basic separation of spirit from matter is at the root of the systems of violence and control that we take for granted in our society.*

Starhawk handily defines three kinds of power: "power-over" — the power of domination, "power-from-within" — which comes from each individual's life force and connection to nature, and "power-with" — the influence wielded among equals. The magic of this book, in a very concrete sense, is that it postulates a world in which "power-over" doesn't dominate, and provides group and individual exercises to begin learning how life's processes unfold when "power-from-within" is the common force.

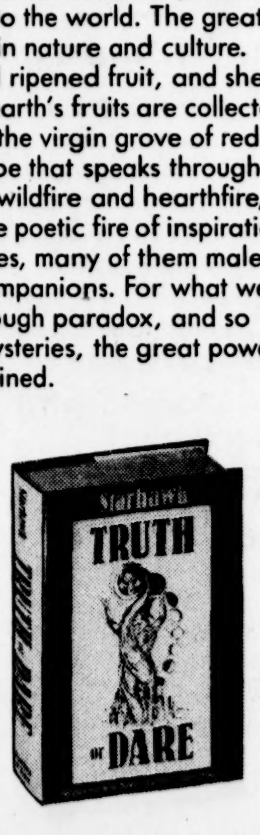
To find systems of control nestled into your very dreams, as Starhawk says they are, is so painful the project of exorcising them begs never to commence. Rather, why not continue living with the internalized "self-hater," the neurotic consciousness that is so common it seems normal? Shed the self-hater if you dare. And be prepared for change. "We cannot become whole in isolation," Starhawk says. —*Jeanne Carstensen*

•

To Witches, the cosmos is the living body of the Goddess, in whose being we all partake, who encompasses us and is immanent within us. We call her Goddess not to narrowly define her gender, but as a continual reminder that what we value is life brought into the world. The great forces of the spirit are manifest in nature and culture. The Goddess is fertile earth and ripened fruit, and she is also the storehouse, where the earth's fruits are collected, guarded, and given out. She is the virgin grove of redwoods and also the carved shape that speaks through art of the wood's power. She is wildfire and hearthfire, the star's core, the forge, and the poetic fire of inspiration. She has infinite names and guises, many of them male: the Gods, her cohorts, sons, companions. For what we call Goddess moves always through paradox, and so takes us into the heart of the mysteries, the great powers that can never be limited or defined.

Truth or Dare
Starhawk
1987; 370 pp.
$19.95
($21.45 postpaid) from:
Harper & Row
Rt. 3, Box 20B
Hagerstown, MD 21740
800/638-3030

or Whole Earth Access



Jambalaya

*Luisah Teish is a storyteller, actress, and priestess in the Yoruba Lucumi tradition. In **Jambalaya** she'll take you to the otherworld of charms and rituals where interactions with the invisible (thoughts and feelings) and inanimate (in this case, everyday household items) are real and malleable and can be used in transforming relationships with ourselves, our loved ones — dead and alive — and society. Based in the African religion of the Mother, this voudou recognizes the power of spiritual kinship, of nature and of sexuality — all things handily forgotten by a system that only wants to use its head in solving problems. Teish illuminates the world of the senses with the "sacred kiss," "pouring money," and making peace clouds out of cottonballs. There's nothing elaborate about her methods — they are the same practiced by an enslaved people who had very little to work with. But Teish's brand brings with it her own unique blend of feminism, humor and history. Entering her world adds a forgotten dimension to everyday life — magic. But the magic here is fun, sort of like making mudpies as a child. Interestingly enough, it also takes you to a similar place, the realm where language doesn't go.*

*But what is self-transformation, really? Read **Jambalaya** cover to cover and you just might find out firsthand.*

—Lori Woolpert

Jambalaya
Luisah Teish
1985; 266 pp.
$9.95
($11.45 postpaid) from:
J. P. Lippincott
Rt. 3 Box 20B
Hagerstown, MD 21740
800/638-3030
or Whole Earth Access

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I define magic as the art of using the forces of nature in the manipulation of symbols to manifest a desired change in people and things. Moreover, Nature has already given us the tools by which we can create everything we need.

Magic is basically of two types, imitative and contagious. Imitative magic shows that things in sympathy attract each other. If you want to affect the thoughts or feelings of another, you use an image (a likeness) of the person and put it together with things of the same nature as that which you are invoking (seeds for abundance, honey for sweetness, and so on).

Contagious magic shows that things which have been in contact share and spread energy. For example, Grandmother's shawl, or the famous dancer's shoes contain and radiate their possessor's energy.

Imitative and contagious magic work best together. So it is best to use an image of the famous dancer on your altar, acquire a pair of her shoes, invoke the wind for agility, and study with a good teacher. The good teacher's thoughts will be contagious. By being near her and imitating the movements she gives you, you will change yourself into a good dancer.

Magic is circular. The law is "What goes around comes around." This law of the circle is evident in the cycles of nature, the seasons of the year, which go and return repeatedly. In magical work, it is important to do things at the right time and repeatedly. If you plant in spring, you should have a wonderful harvest by fall. Practices such as feeding your ancestors should be done repeatedly, until they become "second nature."

The Chalice and the Blade

This is an exciting time in our culture. More pieces of the puzzle of history are coming to hand, especially the puzzle of how and why men came to dominate women — and the earth.

*Riane Eisler wrote **The Chalice and the Blade** (first volume of a projected trilogy) urgently to persuade society that a more cooperative, less destructive partnership model of society is not only possible, but was at one time the norm. Citing, in terms accessible to laypeople, recent archaeological findings and interpretations (including those of Marija Gimbutas), Eisler says that throughout the Paleolithic and even in the Neolithic eras in "Old Europe," goddess- and god-worshipping human groups lived a peaceful, creative, even "civilized" existence. Their lives were characterized by egalitarian "gylanic" relations between women and men. The Great Goddess, with her awesome gifts of birth and regeneration, reigned supreme.*

Societies are shaped by the gods they serve. The Dark Ages, which signaled the advent of the dominator model of society, began about 4300 B.C. Nomadic pastoralist peoples swarmed down out of the steppes and over many centuries imposed on Old Europe a social hierarchy legitimized by a patriarchal god who ruled the heavens and earth. This new "androcratic" order was enforced through violence and propaganda. In her chapters titled "Reality Stood on Its Head" I & II, Eisler analyzes the Oresteia, the Old Testament, and certain elements of the New Testament as writs whose normative function was to destroy any vestigial respect for female authority and to promote a "morality" in which women, children, beasts, and lands could be treated, often brutally, as male property.

*To build her partnership/dominator theory, Eisler moves through prehistory and history into the present, surveying a whole spectrum of thought on social and technological development and evolution. Out of this she predicts a "gylanic" future: "After the bloody detour of androcratic history, both women and men will at last find our what being human can mean." There's an appetite for this. **The Chalice and the Blade** sold out several printings in hardcover before being published in paperback.*

—Stephanie Mills

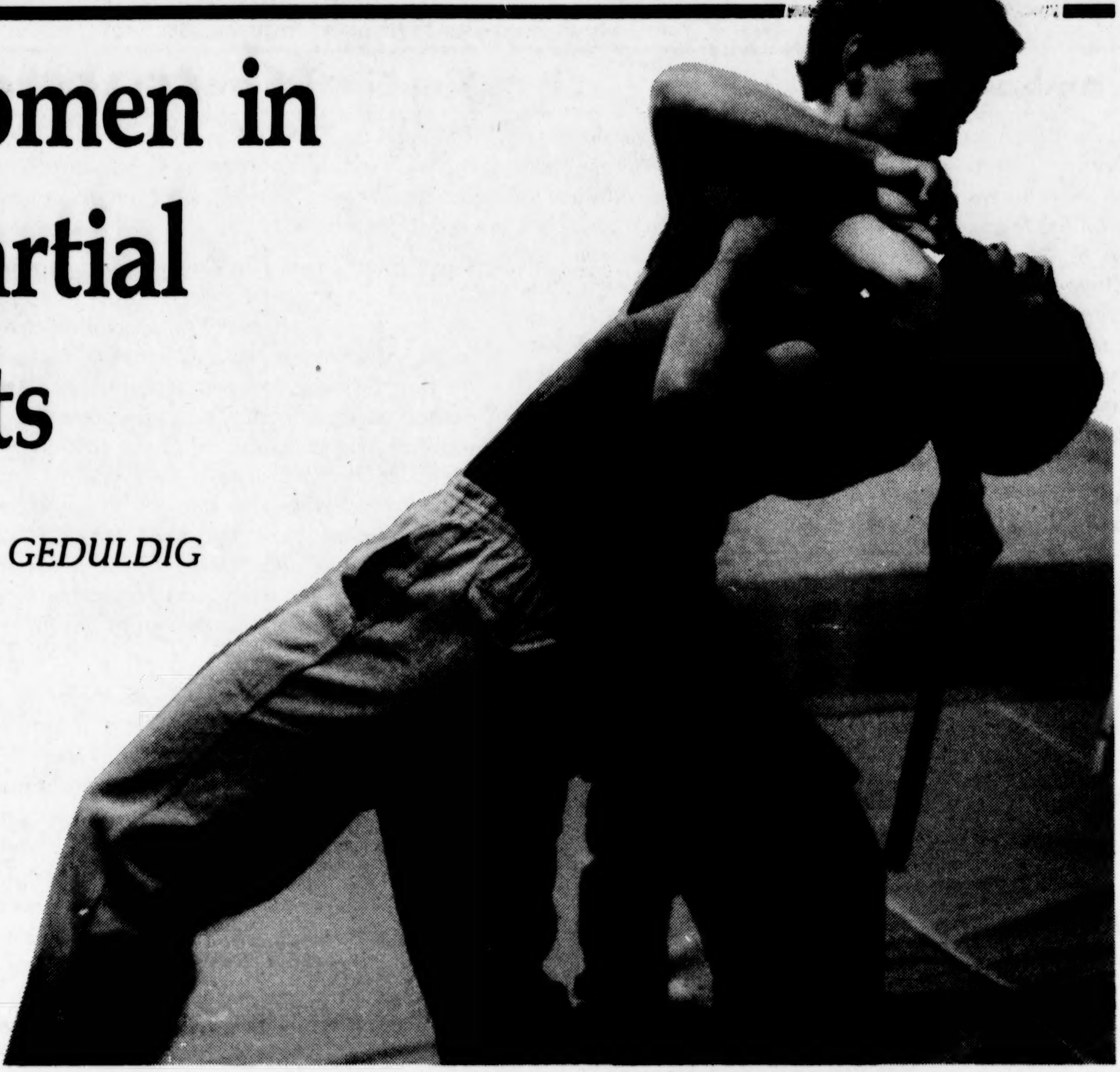
•

Slowly, as the Old Europeans, for the most part unsuccessfully, try to protect themselves from their barbaric invaders, new definitions of what is normal for both society and ideology begin to emerge. Everywhere now we see the shift in social priorities that is like an arrow shot through time to pierce our age with its nuclear tip: the shift toward more effective technologies of destruction. This is accompanied by a fundamental ideological shift. The power to dominate and destroy through the sharp blade gradually supplants the view of power as the capacity to support and nurture life. For not only was the evolution of the earlier partnership civilizations truncated by armed conquests; those societies that were not simply wiped out were now also radically changed.

The Chalice and the Blade
Riane Eisler
1987; 261 pp.
$9.95
($11.45 postpaid) from:
Harper & Row
Rt. 3, Box 20B
Hagerstown, MD 21740
800/638-3030
or Whole Earth Access

Women in Martial Arts

BY LISA GEDULDIG


Jan Probst

Clem Wings disarms Reggie Bufford in Arnis, Filipino stick fighting.

"Guys have John Wayne, and who do we have? Wonder Woman? But she isn't even real!" pointed out one martial artist. Women and girls growing up in this society are exposed to few powerful role models. They're just not typically taught to be physically strong. They're told that being strong is "acting like a boy" or "acting like a man." Many women are unlearning and challenging the false images and myths that women should not be physically powerful, verbally assertive, nor able to protect themselves. A growing number of these women are choosing to train in the martial arts.

Who are the women who train in the martial arts, and why do they choose to do so? Their backgrounds vary just about as much as their reasons for training. Their ages range from five to ninety-one years old; they are Black, White, Latina and Asian, able-bodied, in wheelchairs, blind and deaf, lesbian and straight, short and tall. They began for self-defense purposes, for self-development, for physical conditioning, and for the spiritual aspects of the martial arts.

There are many different styles of martial arts. Training usually consists of practicing basic techniques (kicks, punches, rolls, falls and/or throws), katas (a choreographed set of moves designed to deal with an imaginary attacker or group of attackers), and sparring (a free-fighting exercise combining the skills learned from techniques and kata). Martial-arts training draws on the spiritual and mental as well as physical aspects of the body. It strengthens one's inner self. Its practice takes place in a training hall called a "dojo" in Japanese and a "kwoon" in Chinese.

I came across many recurring themes in the interviews I conducted. Several women pointed out that movies and television rarely show a woman successfully escaping an attack situation. Maria Doest, a fourth-degree black belt in the martial art Shorin-ryu and head instructor at Karate Women, a school in Los Angeles, California, stressed that

Lisa Geduldig is a 5' 1" purple belt in Kajukenbo Kung Fu at the Hand to Hand Self Defense Center in Oakland, California. Her love for (and addiction to) martial-arts training prompted her to write this article. —*J. Baldwin* violence is even *glorified* in movies and television shows. "We're shown women being beaten, murdered, raped or slandered all in the name of entertainment. How can that be entertainment?" And how often is a woman shown successfully warding off an attacker in all of these violent shows? The viewer typically sees women as weak and unable to protect themselves.

On rare occasions do we see a woman who can protect herself. "I kind of hate to admit it, but one of my role models when I was growing up was Emma Peel from "The Avengers." I thought she was great! I watched a rerun the other day, and her karate is horrible. She punches with her wrists bent, her kicks are the wimpiest things in the world, when she rolls she somersaults. But I still give her a great deal of credit because she was the only competent woman I remember seeing on TV," commented Pat Murphy, a brown belt at the Kenpo Karate School for Women in San Francisco, California.

A COMMON misconception about martial arts is that the student is practicing the art in order to go out and kick some ass. The sensationalized portrayal in martial-arts movies can be thanked for that image. Countless times people have commented to me when I've told them that I train in Kung Fu, "Oh, I'd better watch out, you might beat me up." Maybe in some schools that's the intent, but as a student of a feminist approach to martial arts, I am taught the art form for defensive purposes, not offensive. After all, martial arts were developed by oppressed peoples to defend themselves from attackers. They didn't go out looking to kick butt either.

Before beginning training, I didn't realize how important it was to be able to defend myself, to know some techniques I could use in case I was attacked. From the beginning, the spiritual aspects of the martial arts were appealing, but I had to be convinced that learning how to make a fist and throw a punch was a valuable skill. One of the first times I had to punch, my instructor pointed out to me that my shoulder was raised and pulled back so as not to deliver a fully committed technique.

Other women interviewed, like Pat Murphy, began for self-defense purposes. "I had been traveling by myself and invariably when doing so I get myself into situations I probably shouldn't be in, like being at a train station at three in the morning waiting for a four o'clock train. One of the things I was looking for in the martial arts was a feeling of confidence, the feeling that I wouldn't be an immediate victim, that I would be able to do something. People ask, 'Do you think you'd be able to fend off *any* attacker?' No, but I'd be able to do something. I would be able to react rather than freezing."

Maria Doest began her training at her local YMCA, in Houston, Texas. Her approach was twofold, for self-defense purposes and for exercise. "I started training sixteen years ago. In that era

Looking for a school

In your search for a martial-arts school that suits your needs, I would make the following suggestions. Look around at a lot of schools, watch a couple of classes, and talk to the instructors and students. Watch a belt test if one is planned for the near future. If it's a co-ed school, are there upper-ranked women? Do they seem comfortable training there? Do they seem to be treated the same as the men students? Are there any women instructors? "The most important thing," suggests one student, "isn't so much the style, but rather an instructor you really respect and who really respects you."

If you're interested in a six-week self-defense course, you can generally find out about one through your local women's center, rape crisis center or women's martial-arts school.

ORGANIZATIONS

There are two organizations in the United States formed to promote martial-arts training for women. Both the *National Women's Martial Arts Federation (NWMAF)* and the *Pacific Association of Women Martial Artists (PAWMA)* organize annual training camps, publish newsletters, provide lists of women's martial-arts schools, and sponsor training events. Annually, NWMAF runs Special Training, a four-day intensive training camp on the East Coast over the summer, and PAWMA runs a three-day camp in California in the fall. In 1989, the two organizations will combine their efforts, and NWMAF will sponsor Special Training (for the first time on the West Coast) in San Luis Obispo, California July 6-9, 1989. PAWMA will resume its training camp in 1990.

For information on these organizations and training camps, contact:

NWMAF
Special Training '89
5680 San Pablo Avenue
Oakland, CA 94608
Membership: $25/year
(includes newsletter).
Training camp: $195
(deadline for $95 deposit
is March 15, 1989).

PAWMA
P. O. Box 858
Berkeley, CA 94701-0858
Membership: $15/year
(includes newsletter).

For information on the fall intensive-training camp in Australia, contact:

Penny Gulliver
5/332 Bondi Road
Bondi, Australia NSW 2026

Concerning the summer intensive-training camp in Holland, contact:

Feminist International
Summer Training
p.b. 11509
NL-1001 GM Amsterdam
The Netherlands

there were very few women training. The attitude was, 'Why don't you take ballet instead?' There were very few women in the class. At that time it wasn't something that women really did. Another woman and I became really dedicated and started changing the way women viewed what they were doing at the school. A lot of times the men tended to ignore the women . . . and I was there to train. Because I was there to train and didn't fool around, it made the other women also train hard. I think my attitude helped change my instructor's attitude about the women who were training, that women *can* punch, that women *can* kick. He, in turn, made them start training harder."

Anne Moon, a second-degree black belt and head instructor of Kajukenbo Kung Fu at Seven Star in Seattle, Washington, agreed that most of her students started for self-defense purposes. When asked why she would encourage women to train in the martial arts, she talked about the spiritual values of the martial arts. Most physical activity — whether it's dance or some other form of movement — emphasizes either the sport or the performance aspect. In the Western world, physical activity generally lacks the spiritual path that the martial arts provide.

THROUGH training in the martial arts, I have realized that I have both the right to defend myself and the ability to do so. Training has made me more aware of what I would be capable of doing in case of a confrontation. I don't necessarily feel safer on the streets at night, but I feel more aware of my surroundings. I find that I carry myself differently when I'm walking home alone at night. I have some idea of what my reaction would be toward a potential attacker. I've now punched and kicked in class. I had never done that before. I've freed myself from grabs. Before, the attempt to physically fend

Doug Menuez

Model Mugging

I've never seen Model Mugging in action, but it sounds like a great program. Imagine taking a self-defense course in which the "attacker" (a trained "mugger" with an average of fourteen years' martial-arts experience) comes at you padded in thirty pounds of protective gear all over his/her body so you can really go all out to defend yourself and wail on this guy. The attack doesn't stop until the Model Mugger indicates that a knockout blow has been delivered. Seems like an intensely realistic practice against a would-be attacker.

The course was designed seventeen years ago by martial artist Matt Thomas after an award-winning black belt in his class was brutally raped. Apparently, she didn't have much practice fighting from the ground. —LG

• For information on classes in your area, or on the Instructor Training Program, contact: Model Mugging of Monterey (P. O. Box 921, Monterey, CA 93942; 408/647-2204); Model Mugging of Kansas (4030 Broadway, Kansas City, MO 64111; 816/931-8022); or Model Mugging of Boston (P. O. Box 31, Boston, MA 02199; 617/730-4129).

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"Basically, we set up an adrenaline state under which freeze and flail responses are reconditioned. If that adrenaline state is similarly aroused in a real life attack, women's bodies respond in ways their muscles remember as being effective: they fight in the no-mind warrior state of reflex action." *—Matt Thomas*

Model Mugging News
Mary Tesoro, Editor
$15/year
(4 issues) from:
Model Mugging News
P. O. Box 986
San Luis Obispo,
CA 93406

MODEL MUGGING NEWS
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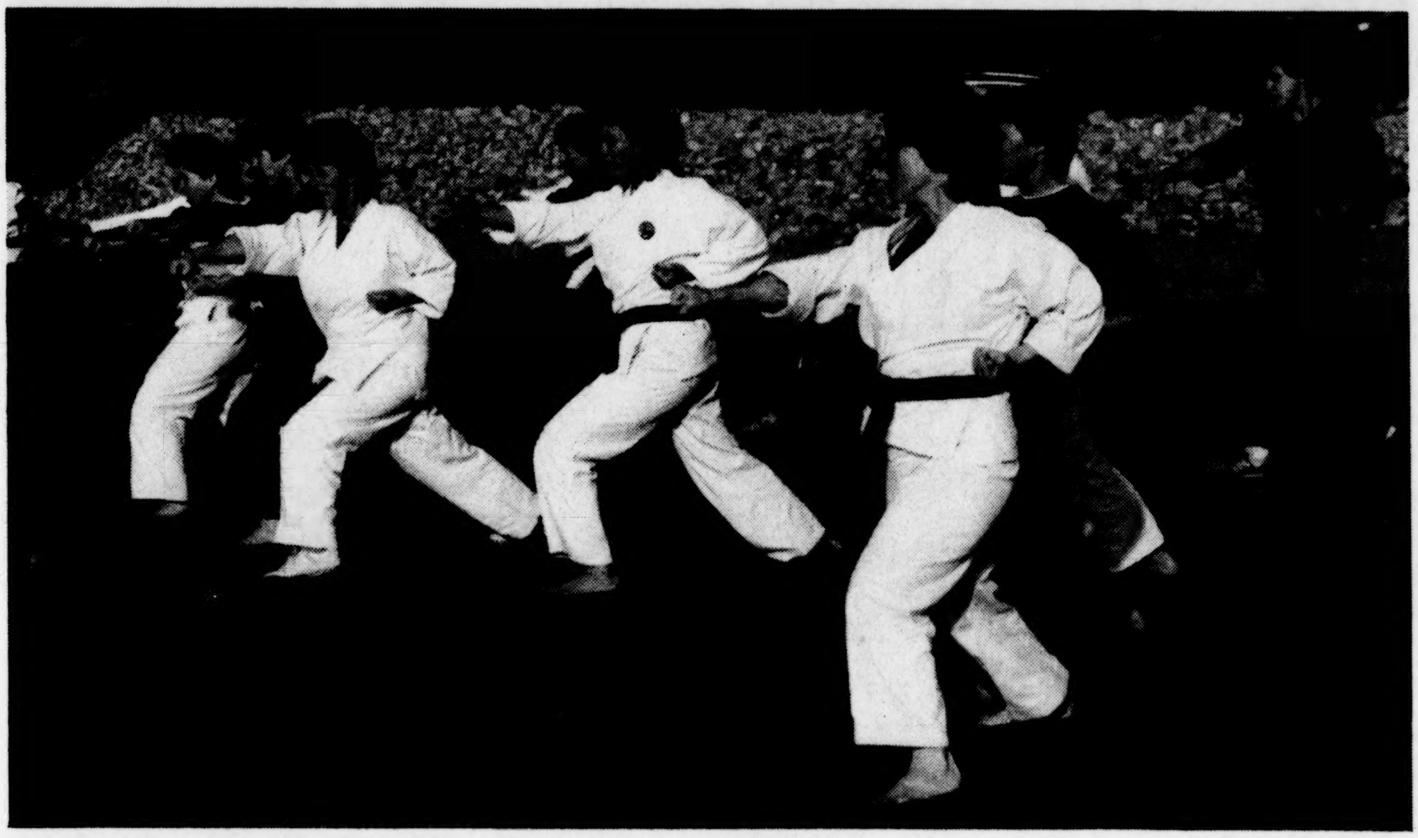


Punching drills on the beach at the Pacific Association of Women Martial Artists' training camp.

Laura Israel

off an attacker would have been completely foreign to me. If a guy attacks me on the street, I'm not going to hit him with a kata. The techniques I learn are rehearsals for real situations. Come the situation, I might not remember all my lines, but I'll remember some of them. I'm setting up mental and physical patterns.

People ask me if I've ever "gotten to use" what I've learned in martial arts. No, and I hope never to have to. They're surprised by my response as well as when I tell them that my first reaction would be to get myself *out* of the situation, to *avoid* the attack. They always seem disappointed that I don't sound eager to try out my techniques on an attacker. If I had to, I feel that I could throw a strong technique that would debilitate the attacker just long enough to get myself out of danger. But I'm not about to go out looking for trouble to see if I can defend myself.

Lisa Hirsch, an advanced student at Laurel Jujitsu in Oakland, California, agreed with both my feeling of confidence and my feeling of uncertainty. "I do feel I have good skills for defending myself. Though at the same time, the more I learn, the more I realize how much I don't know. In some ways, life gets scarier as you find out what you don't know. You think, 'What's going to happen if

Her Wits About Her

Here's a collection of self-defense success stories as told by women survivors from all walks of life. These women used a variety of strategies to get out of and survive their attacks. Some ran, kicked, negotiated, struggled, used weapons at hand, while others assertively used their voices to fight off these attacks in their homes, cars, public places and on the streets. The accounts show how each woman used her own individual intuition.

There's no set formula to ward off an attacker. The survivors' self-defense backgrounds ranged from no previous training to being black belts. Included is a list of self-defense programs in the United States and Canada, along with an annotated bibliography concerning self-defense and related topics. This book is a must for every woman, whether or not she's involved in self-defense.

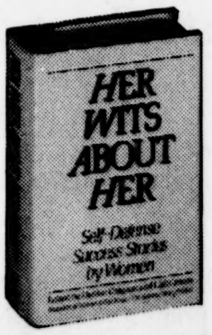
—LG

●

"When he jumped on me again, I just grabbed him by his privates, and told him to leave me alone, and then he vomited all over my place and fell asleep on top of me. I prayed, I asked the Lord, I said, "Lord, I got the faith but I just ain't got the strength." And the minute I said that, the good Lord put the strength in my hand. Then I wasn't scared no more.

So I made my way from under him — I couldn't walk because he had taken my [artificial] legs off — I crawled to my telephone and then I called the police, my Sunday-school teacher and her husband, and they all came."
—69-year-old woman in Kentucky

Her Wits
About Her
Denise Caignon
and Gail Groves, Editors
1987; 303 pp.
$9.95
($10.95 postpaid) from:
Harper & Row
Keystone Industrial Park
Scranton, PA 18512
800/242-7737
or Whole Earth Access

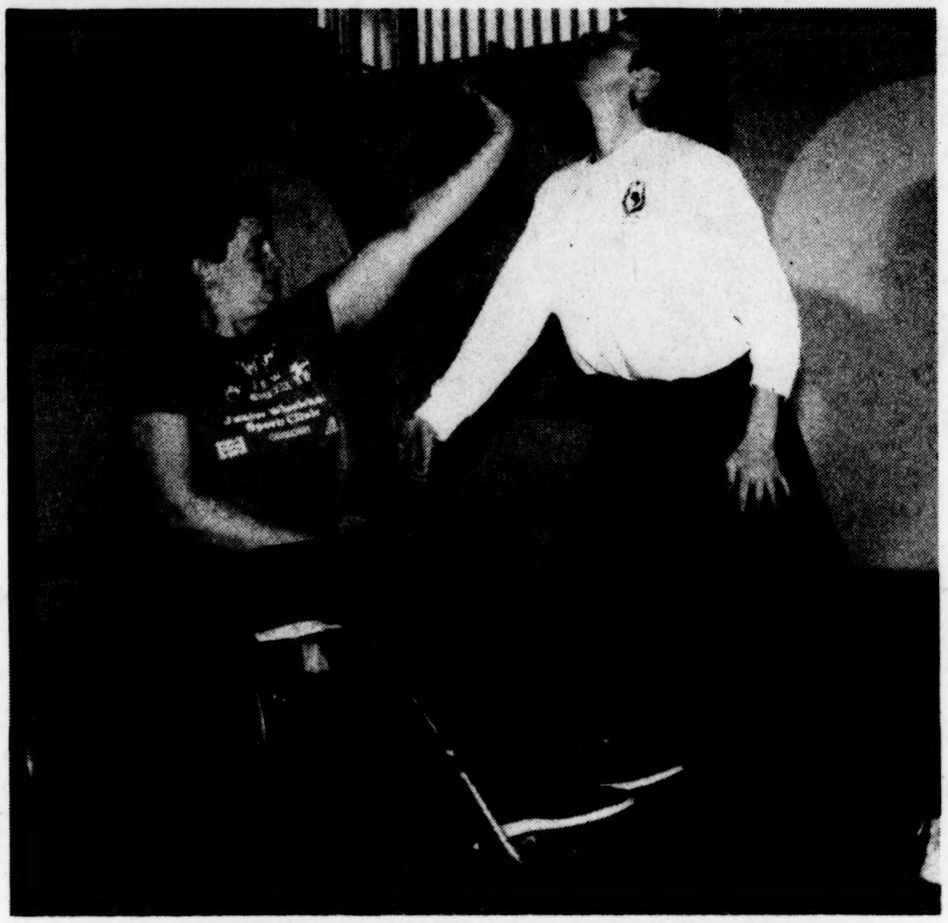


. . .' " I think of things like someone putting a knife to my throat.

"I find that I'm starting to look at death a little bit more and a bit differently than I used to. I'd always known that it was possible that I'd have to kill someone to defend myself and I accepted that a long time ago, even though I have some qualms about it. It's a horrible idea, but now that I'm working on defenses against knives and guns, I'm looking more at my own death. In the dojo, you have the opportunity to die a thousand times and be resurrected. What we're really learning is commitment and intention."

Simply knowing that you can defend yourself can change how you view yourself. Several women talked about being hit or abused as children, when they didn't think about defending themselves. One woman, who chose to remain nameless, stated, "When my father or my siblings would hit me, my automatic reaction was always to cower in the corner and protect my head. Now I know I would fight back. Training has given me the confidence to know that I would never again succumb to abuse like that. Too bad my mother didn't enroll me in karate when I was a little girl."

Maria Doest talked about the effects of training on women who have been physically or sexually abused. "I think training empowers the women because there's something lost when a woman is attacked. Something is taken away from her, and that's the ability to defend herself, the ability to control her own life. Taking self-defense or taking martial arts gives her back that feeling of control; it puts that back in her life."


Jan Probst

Kate Cloudsparks fends off Coleen Gragen in a class for disabled women at the Hand to Hand Self Defense Center in Oakland, California.

The women I spoke with pinpointed specific gains that they've noticed from their training, related to self-awareness and self-confidence, as well as self-defense. Candida Kutz, who trains in Choy Li Fut in San Francisco, California, commented, "I felt awkward *walking* before I started training; I felt uncomfortable with my body. Now I feel powerful. I feel more confident in the world in just day-to-day dealings."

For some, martial arts have helped ease the stress of the daily grind. Pat Murphy pointed out, "When I first got into martial arts, I was at a very high-stress job, and I was under constant pressure. Martial arts works for me as kind of a moving meditation. When I'm

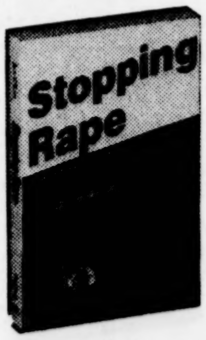
Stopping Rape

This study on how women responded to the threat of sexual assault is interwoven with testimonies of rape avoiders and women who were raped. It offers insight into strategies that women have used to get out of attack situations. Factors such as the women's childhood socialization are examined. The book has a somewhat sociological-study tone, but still it's a useful resource in how to avoid rape. The reader should by no means take this as a sole means to self-defense. Take a course too. —LG

•

Historically, women have been advised to avoid rape by restricting their behavior; thus the Israeli parliament suggested a curfew on women when the rape rate increased. However, Prime Minister Golda Meir suggested a curfew on men because they were the ones doing the raping.

Stopping Rape
(Successful Survival Strategies)
Pauline B. Bart
and Patricia H. O'Brien
1985; 199 pp.
$11.95 postpaid from:
Pergamon Press
Maxwell House
Fairview Park
Elmsford, NY 10523



working on a form, I have to be focusing on the form or I can't do it. When I'm sparring, if I'm thinking about what I'm going to do next Saturday, I'm gonna get mashed. It focuses me on being in the here and now. To me that's an immediate payback."

Martial arts have aided some during times of serious illness. Gloria Boldizar, the head instructor at the Kenpo Karate School for Women in San Francisco, California, recently survived a battle with breast cancer. "There have been times in my life when I was very depressed, and I just kept training. Martial arts helped me get through those dark times. Just last October (1987), I was diagnosed with breast cancer. I had a mastectomy, went through *intense* chemotherapy and radiation, and there were times when I was very, very sick. And my martial-arts spirit of 'never give up' held me. I even went into the dojo, as sick as I was, and did a little karate. I did some katas very slowly. It empowered me.

"When you're as sick as I was and you have to go to the hospital all the time, you get the sense of not being the empowered person you are because you're saying, 'Yes, you can do this to me.' When you go and you do your art, you remember that you *are* the powerful one. It helped me keep a balance, keep a perspective. Also it gave me something to look forward to. It empowered me, it made me feel good, it made me feel alive. 'When I get through with all this, I can go train like hell and teach like hell.'

"My surgeon is also a martial artist. He would constantly tell me about my martial-arts spirit, that it's what's going to help me heal, to bring up my chi (energy). He would also tell me, 'Even if you're sick, do your katas in your head,' that it would help my spirit and my healing. We worked together in my healing."

WOMEN train both in co-ed schools, which are usually predominantly male, and in all-women's schools with women instructors. Some have trained in both, and some have been instructors for schools of all men and have subsequently opened all-women's schools. Currently, a second generation of women martial artists, women taught the arts by women, is opening women's schools.

Sixteen years ago, Gloria Boldizar began training in a school that was predominantly composed of men. "I enjoyed that because it was very challenging. I was pushed very hard, and I appreciated that. I wanted to be the best I could. There were times that it was pretty discouraging because I didn't have the physical strength. I felt like my teachers continued to push me hard and expected the best, and I felt their push as a sense of, 'We think you can do it, Gloria.' I loved training. I wanted it to be part of my life. So, I appreciated their push."

There may be certain odds against a woman who is the only or one of the only women training in a men's school. Some women said that in training men didn't treat them as equals, treating them as if they were frail. Other women said they were pushed and tested a lot more than the men students. Maria Doest's instructor hadn't wanted her to train at his school

"I have proved that it really works. My fingers no longer lock with arthritis, my arthritic shoulder is perfectly movable — no pain — and agility and flexibility great when it comes to sparring . . ."
—*91-year-old Lucille Thompson, Tae Kwon Do black belt*

Fighting Woman News

This is the only magazine that I've come across by, for, and about women martial artists. Includes articles on different issues concerning martial arts and self-defense, announcements of events, book reviews, letters and a partial directory of martial arts and self-defense schools. The magazine's only fifteen pages, could stand to be improved, but it's definitely a start. —*LG*

FIGHTING WOMAN

Fighting Woman News
Valerie Eads, Editor
$10/year
(4 issues) from:
Fighting Woman News
P. O. Box 1459
Grand Central Station
New York, NY 10163-1459

because he said that women "never lasted." She told him that she had fought full contact and had always trained with men, so he gave her a chance to train at the school. She ended up becoming the head instructor when her instructor left town "rather rapidly" one night. The school was all men; she was the only woman. When she became the head instructor, the men who "didn't mind, stayed and were excellent students, and those who did mind, left."

From the time that Maria Doest received her black belt, she planned to open an all-women's school. She believes, "An all-women's school is good as long as the instructor is a strong instructor. If you have an instructor who doesn't have real strong techniques, her students won't have strong techniques. I hate comparing women to men, what I see is a bunch of martial artists. If you're gonna throw a punch, you're gonna throw a good punch, no matter who you are, what you are, how tall or short you are or how heavy you are."

An all-women's school can provide a safe place to train. It's more difficult for women who didn't grow up natural athletes or for rape, incest, and assault survivors to begin training in a school full of men.

There are other advantages to training in a women's school. According to Lisa Hirsch, "There's a supportiveness in an all-women's environment. It's easier to be vulnerable and open to some of the emotional things that happen during training. There's a lot of fear to be dealt with. It's less intimidating to start working on techniques with other women. An all-women's school becomes a place where women can be strong and can be leaders without dealing with the kind of male-female politics and power imbalances that go on in the world in general." Anne Moon believes that "There was a crying need for the changes feminism is making in the martial arts. The art form itself is so male-defined and masculine in history. Women martial artists need to find their history."

I discussed with several women the benefits of training with men as well as with women. Pat Murphy says that the ideal situation for her is to "train with women regularly and work out with men now and then. That way I can build my material working with women and test it out and challenge myself by working in co-ed schools." One benefit of training at her women's school is that "it's more community-oriented and much more oriented to helping everyone, even the people who may not be naturally aggressive or athletic. I think many men would probably prefer karate schools that are less macho. I'd imagine that a lot of them would like to train in the type of environment created in a women's school." ■

Women's Self-Defense • Self-Defense: Women Teaching Women

***Women's Self-Defense** discusses violence against women, the misconceptions and realities, and feminist self-defense. Like the video put out by the same group, this book addresses three areas: awareness, assertiveness and physical techniques. Good photos of self-defense moves accompany an easy-to-read text. Again, do not attempt to teach yourself self-defense by reading this book. Its purpose is to be a follow-up to a self-defense course, something you can refer to at home.*

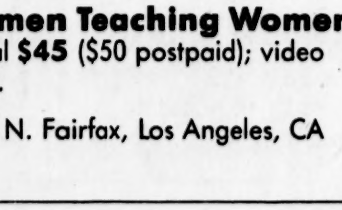
"RALPH," THE RAPIST

"Ralph." An old pair of pants can be sewn together at the cuffs and stuffed with rags, foam, etc. This gives you a feeling of practicing on a human body.

***Self-Defense: Women Teaching Women** is a two-part video designed to provide tools for effective self-defense teaching for women who are either already self-defense instructors or are planning to start a program. It is accompanied by an instructor's training manual. Workshops are filmed in which women discuss their fears, misconceptions, and success stories as well as learn self-defense techniques. Part One of the video looks at basic self-defense instruction; Part Two addresses special needs of elderly, physically disabled and deaf women. The purpose is to complement training from experienced instructors, not to replace it. Don't attempt to learn self-defense solely from watching this video!*

—LG

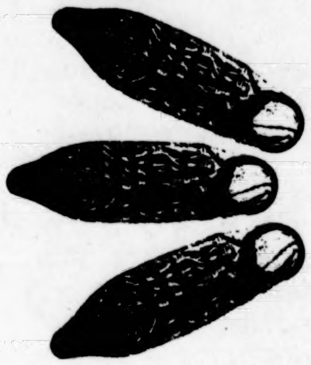
Women's Self-Defense
Los Angeles Commission on Assaults Against Women
1987; 109 pp.
$10
($12 postpaid).



Self-Defense: Women Teaching Women.
126 m. video and manual **$45** ($50 postpaid); video only **$40** ($45 postpaid).

Both from LACAAW, 543 N. Fairfax, Los Angeles, CA 90036; 213/655-4235.

WARNING: **Boys may not read this. If you are a boy and are reading this, stop immediately. The following article is chock-full of highly intimate girl secrets that will be 10 times more embarrassing than any TV commercial for feminine-hygiene products you've ever seen. So quit it. I mean it. You'll be sorry.**



A Girl's Guide To Condoms

by Mimi Coucher

Condoms Demystified

There are basically three kinds of condoms: unlubricated latex, lubricated latex, and lambskin. The lambskins are no good because they haven't been proven to be a barrier to infection. Anyway they're really made of lambies and that makes us sad, especially around Easter time. (The real reason we don't like them is that they actually smell like lamb. One is tempted to lubricate them with mint jelly.)

There are variations on the basic latex condoms. Some condoms are prelubricated, with spermicidal jelly, even. Others are not. Strictly B.Y.O.K.Y.

The strangest condom by far is the ribbed latex condom. Why are these condoms ribbed? This is supposed to be stimulating? Should one attempt to play washboard tunes on it? This is just part of a big problem with condoms. Condoms were, and are, designed by men.

If Girls Designed Condoms . . .

What a wonderful world it would be. Skip the ribbing, skip the lube. If women designed condoms there is no question that they would be padded.

"But size doesn't matter!" comes a chorus of voices. (The loudest voices come from boys who are peeking. Stop that right now. Turn to the sports page immediately.) Sure *length* doesn't matter. But give any girl a small dose of truth serum and ask her about width.

Admit it. If padded condoms were placed on the market, hordes of screaming women would storm their local druggists and dash out with tote bags full. Unfortunately, it wouldn't work. After all, there is that ticklish issue of boy sensitivity, which we can't overlook, even if we occasionally want to. Padded condoms would rob boys of the skin-to-skin sensation they already claim condoms rob them of. And we can't have that.

Now we modern women, being kind and sensitive lovers, would design whisper-soft condoms, completely transparent and microscopically thin. The paisley, rainbow, and floral-print condoms we designed would be strictly novelty items, kept for special occasions only. Ditto the condoms with cute sayings: "Hang in there, baby. Friday's coming"; "My girlfriend went to Florida and all I got was this lousy condom"; and the classic "I'm with stupid" (arrow pointing back toward the boy). Other specialty items would include the male-ego condoms, which, like black olives, come in three sizes: jumbo, colossal, and humongous. Naughty subversives would enjoy the Karen Finley assortment, colorful, decorative condoms that turn ordinary penises into bananas, hotdogs, yams, and more.

But I digress. The best place to buy condoms is your local massive drugstore that has them on display, self-serve, just like corn pads or athlete's foot spray.

So go shopping. Dress cool, hold your head high, read labels, make your selection. Be assured that most popular brands come with little instruction booklets much like the ones found in boxes of Tampax (uh-oh — don't mix them up!). While at the drugstore, be sure to purchase at least one of the following items: Tickle antiperspirant, Ban Roll-On, or any of the Calvin Klein line of men's grooming aids. You'll need these for important condom experiments at home.

At home, be alone. Light candles. Play inspiring music; any record by Rick James will do. Remove one of the condoms from its packet. Examine it carefully. Then put it to work. Experiment with your slippery new friends; whip those sons-of-gummi-worms into shape. Recruit those deodorant bottles and practice, practice, practice.

And how about some new nicknames for the old standbys? Love skins. Slicks. Wet suits. Silk stockings. Eight-by-two glossies.

Soon enough, you'll be happy and relaxed, perfectly in control of those silly little slips o' skin. But wait. Something's missing. Oh yes, the hard part. I mean the good part. I mean, both. ■

BACKSCATTER

Echoes from readers back to *Whole Earth Review* (27 Gate 5 Road, Sausalito, CA, 94965)

Too many white males

Whole ? Earth 20th Anniversary
Issue
No
Black
Hispanic
Asian
Amerindian
among the staff
and contributors
Would you care to comment?

Richard de Queiroz
Palos Verdes Est, CA

No Arabs, Pentecostals or Republicans, either. Ah, diversity. This was the most to-the-point of thirteen letters we received with the same complaint. One letter began "since you are the self-appointed spokespeople for the whole earth . . ." Wrong. We are an opinionated, geographically provincial, and overeducated small group of people being tutored by the whole (as in interconnected) Earth. No group, no matter how well-meaning, can represent the people on Earth. Yet there's no doubt that this magazine would be better if it were being fed by the full blood of ethnic knowledge coursing round the world. I hope future issues take up that challenge. But that wasn't the intention of the 20th anniversary issue. The purpose of that celebration was to gather a bunch of the Catalog's and magazine's old friends, starting with the line-up that spoke at the 10th anniversary Jamboree, for anything-goes gossip under the presumptuous banner "Whole Earth." It might best be thought of as an informal family reunion, where one expects other diversities beside ethnic heritage. Are we racist and sexist? Nope. We'll consider well-put ideas from anyone without any regard to their sex, race or belief. Ditto for staff. Can we be more diverse? Yep. —Kevin Kelly

Appropriate convenience

I used to believe that the decision of most Americans to use disposable diapers was strictly an environmental problem, as you suggest in "The Disposable Diaper Myth" (*WER* #60, p. 60). That was before the birth of my (now 6 month old) daughter. I have discovered the real D.D. Myth is the *marketing myth* that they are "more convenient" and "better for baby." D.D.s have been sold to the public in the same underhanded way that formula was (and is) substituted for breast milk — the ugly mask of "convenlence" over the face of "there's a big profit to be made."

We've had a baby diaper service from the very beginning. Each week they deliver fresh clean diapers and take away the dirtys. We don't have to soak them, rinse them, or flush them. We never have to shop for diapers, which means we never run out. With natural fiber diaper covers changing is a breeze. *We save money and time*, and if that's not convenient I guess I don't understand the meaning of the word. *And* I can rest easy knowing that huge mess of pollution generated by D.D.s is not of my making.

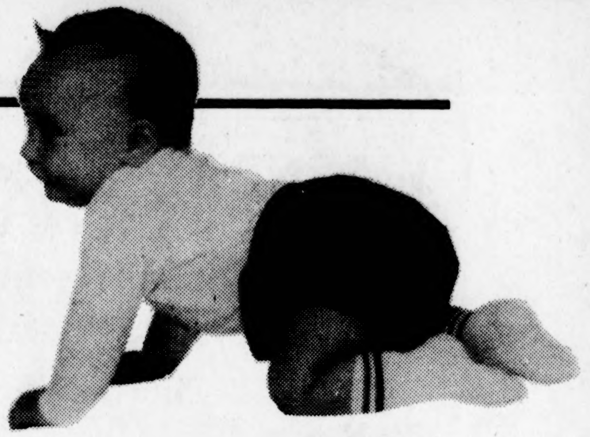
I urge all conscientious new parents, or friends of new parents, or whatever-whoever-everyone, to do their best in "marketing" cloth diapers. For example, a diaper service gift certificate is a great gift for an expectant parent(s) to receive . . . in this way you give a gift for human life and for mother nature's life!

Cris Nyman

P.S. Another source for natural fiber diaper covers, and other items like the best 100% cotton nursing bra I've yet found, is The Natural Baby Co., Rt. 1, Box 160S, Titusville, NJ 08560, 609/737-2895.

Toxic diapers

I was still reading through No. 60 when No. 61 arrived. It may be past time, but I would like to offer some information relative to the disposable diaper piece (*WER* #60, p. 60). According to Ida Honoroff, a venerable hell raiser from Arcata, CA, disposable diapers, like all paper products, contain trace amounts of dioxin. Dioxin is apparently a by-product of the bleaching process done on the wood pulp before manufacture. Dioxin, of course, is one of the most toxic substances on earth and one wonders what the long term effect may be of even trace amounts of dioxin coming in contact with babies' bottoms. Certainly there is the possibility, since babies who wear these diapers have frequent diaper rashes, that the dioxin may be absorbed through the blood stream. Moreover, the super absorbency of these diapers may present a problem. It was, after all, the superabsorbency of tampons that led to toxic shock syndrome. If anyone would like to know more about the dioxin factor in disposable diapers, Ida Honoroff may be contacted through KHSU-FM, Humboldt State University, Arcata, CA 95521.



Mary Siler Anderson
Redway, CA

A better anarchy

Lawrence Ferlinghetti's statement, (*WER* #61, p. 115) provides a perfect example of several of the most common misconceptions circulating in our society today.

The first is to consider one's self an anarchist, then advocate more government. Of course anarchy doesn't mean "bomb thrower," it simply means *no government*. In the same interview he calls himself an anarchist, then calls for a major new government limit on auto makers, restricting them to one new model every two years. That is not anarchy.

The second is that there isn't an alternative political party in the U.S., demonstrating the amazing success of the Demopublican Party at keeping the existence of the Libertarian Party a censored secret for eighteen years. For an "anarchist" who advocates major reductions in military spending to show no sign of knowing that a political organization exists that explicitly backs his positions, is a sad failure to look beyond mass media headlines. One need not agree with every plank in the Libertarian platform (and I do not) to recognize their existence and consider them a legitimate alternative to the Republicrats.

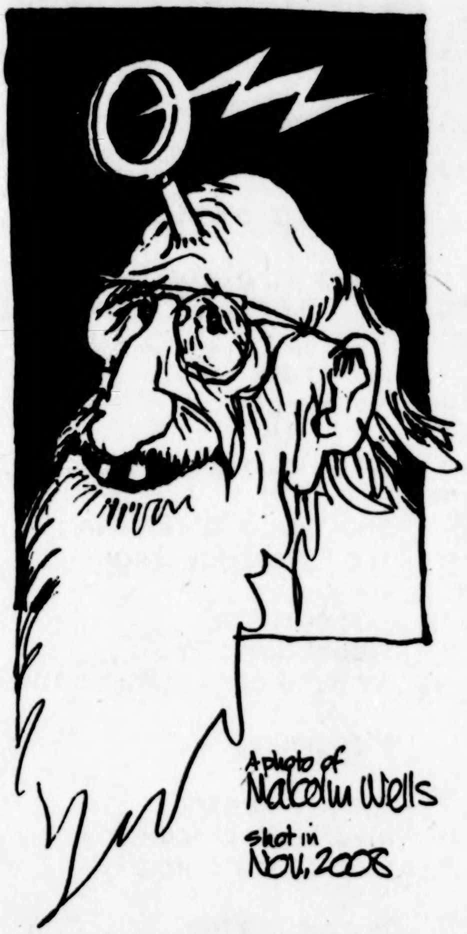
The third is that the problem of too many automobiles is anyone's fault but the person's behind the wheel. He speaks of automobile manufacturers as if they were unilaterally clogging our streets with driverless cars being operated by remote control from Detroit. The population is exploding with domestic births and legal and illegal immigration, and they all want to drive. As long as the majority of adults fail to recognize commuting five days a week and long-haul recreational driving the other two days for the crime against the environment that they really are, the problem will continue. Our whole society is built up around the concept of separating jobs and housing by great distances, and traveling as far as one can afford on vacation. The best mass transit systems still involve shuttling millions of bodies back and forth five days a week, and even they are failing to attract enough riders to make a dent in traffic. Why? Because the long commute is a modern hairshirt for many and a form of twice-daily Zen for others. It is also an ostentatious badge of success for many. Virtually no one considers the environmental consequences for their mileage, or tries to arrange their lives to minimize it. If auto makers are culpable in this mess, it is for their clout in getting government to subsidize the best road system in the world. We have only ourselves to blame for lusting after sleek machines and all the rides we take in them.

The fourth is that depressions are a bad side effect of capitalist systems. Government manipulation of the economy and money supply produces whipsaw effects that are the primary source of depressions and can happen under any type of system. Anarchists should be more aware of that than anyone. The assertion that a depression is "something that happens on paper" is a callous denial of the empty bellies and ruined lives that always result. Reducing our assault on the environment can only be brought about by changing our lifestyles, not by triggering economic collapse. Unfortunately, the economy is headed for collapse whether Mr. Ferlinghetti advocates it or I do not. If artists are supposed to be our canaries in the coal mine, he has done a poor job of preparing himself for the task. I could give him a very interesting reading list, and it wouldn't be poetry.

Thomas O. Ness
San Francisco, CA

When we're 64

Enclosed is my contribution — unsolicited— to your 40th anniversary issue. I'll enclose a snapshot to go with it, just in case you're starting to assemble pieces for 2008.



If anyone had told me, 20 years ago, back in 1988, that I would find myself today living on the great South Pacific Plain, or that I'd be a Republican, and a millionaire to boot, I'd have kicked him out of the house. If he'd said I'd enjoy spending the rest of my life sealed in an archicell I'd have called him crazy. And yet look how things have turned out.

There I was, like you, I suppose, worried about all the wrong things, calling the environmental situation "a crisis," worrying about nuclear war, and certain that the Reagan-Bush years were destroying all that was good about America's social progress. I can remember fussing about chemicals in the food, plastics in the trash, poisons in the water, and radiation in the air. I worried about the homeless, the poor, and the native Americans, as well as the whales, the baby seals, and all the endangered species.

What a fool I was! And how happy I am that my worries all proved to be so groundless. We had our nuclear war and survived. The forests all died and no one suffered. The wild animals became extinct and the G.N.P took no notice of it. The Dow just went up and up and up, making us all rich beyond our dreams. And, with the Elimination of the Poor, crime virtually disappeared. We live today in a truly moral society. If this isn't paradise I'd like to know what is.

I date my change of heart from the year of the Operations. I don't know if they affected it or not. All I know is they turned out not to be painful at all, and my head healed in less than 3 weeks. Between the implant and my government medication I haven't a complaint in the world. The Hourly Proclamations have become the center of my life. It's like having someone watching out for me 24 hours a day. I can't tell you how secure I feel.

In 1988 I thought there was no god. I thought I was right and the world was wrong, wrong about almost everything. I even thought the major corporations were too big! And they hadn't even *started* to grow, back in the Eighties.

Now I know that God not only exists but that He cares about me, personally. They wouldn't say so if it weren't true. The American way of life has got to be the best life this world has ever seen.

Best regards,
Mac (Malcolm Wells)
Brewster, MA

What ever happened to . . .

In response to Kevin Kelly's query "What ever happened to . . ." on page 142 of the Fall issue.

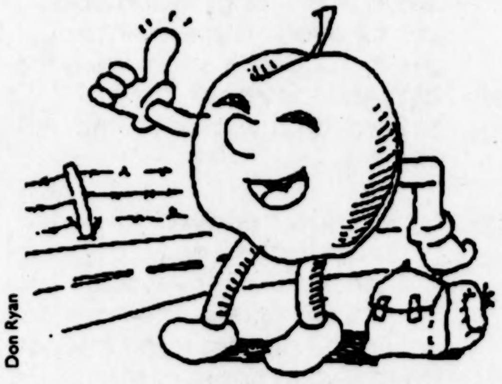
Voluntary simplicity is alive and well. My latest housemate handed me the book after I handed her the article. There are cool people out here in this day and age. But not many in New Haven.

Tree planting Hoedads? They are still alive, maybe under some other name. Have you checked out the Seattle Folklife festival on

Memorial Day weekend or the Oregon Country Fair lately? They are up in the foothills of the Cascades. Two generations now. This summer I gave a ride to a seventeen year old kid whose parents left San Francisco in 1970, moved to the Oregon coast, and haven't changed. The kid was alright.

Hitchhiking? People still do it, but not as much. I've accumulated 150,000 miles from 1975 to the present, though little in the past five years. It's still fairly easy. In May 1987 I had to give a talk at Yale University. When I got off the airplane in Hartford, the limousine service was canceled. So I hit the road, and got to Yale in three rides.

The better question is who is on the road these days? I did several trips between Seattle and San Francisco the past couple of years, and I gave rides to just about everybody I saw, given the space constraints. All but two out of maybe fifteen people needed some type of psychological care. The administration has emptied the institutions onto the streets. Twelve years ago that stretch of highway was filled with people traveling, today it's full of fruit.


Don Ryan

The magazine is great. I've moved a lot in the past ten years, and everything I own fits in my 40 mpg Honda Civic Wagon, but the one luxury that I allow myself is my *CoEvolution Quarterly* (still don't call it the *Whole Earth Review*) back issues. Everywhere I live they occupy a place of prominence. Keep up the good work.

Cleve Ashcraft

Quoted in earnest

graffiti, last stall, men's room
Rochester Institute of Technology
12/88

I wish I was a headlight on a
northbound train

Wake up to find out

you are the eyes of the world
You are the song the morning
sings
In and out
No one gets hurt

Good lovin gonna make it right

Your typical city involved
in a typical day dream

Half of my life
I spent doing time
for some other fuckers crime

If dogs run free . . .

The sun will shine in
my backdoor someday
(with sunrise sketch)

Test me test me
Why don't you arrest . .
(with sketch of jailed Jesus)

collected by Sam Abrams
Rochester, NY

Small is fine

A little late in reacting to your Spring 1988 issue, but I want to suggest a different attitude to your "terrible" flat curve of subscriber volume. It does seem that your community is about 30,000 and you are serving us well. Rather than "rising out of that tidepool and nailing the folklore to the wall," I suggest you have a wonderful opportunity.

It is the curse of small organizations to believe that they must grow in numerical size to be worthwhile and vibrant. It is the curse of nations and economies and world population to believe we must grow in size and numbers to be worthwhile and vibrant. You have a heaven sent chance to show how a valuable organization can stay valuable and lively without having to get bigger. Many of us, your readers, are fans of Small Is Beautiful and opponents of "bigger means bigger." You could be part of a model for the future of the world.

Ian D. Brown
Victoria, B.C.

Simultaneous group writing

Re the technique for collective writing invented by Ken Kesey and his students (*WER* #61, p. 46). Now all we need is a software patch for the word processing program which would allow several people to type from different keyboards to the same display screen at the same time (with different symbols for each cursor) — simultaneous collective writing.

Paul Angel
Denver, CO

Corrections

Many readers have written wanting to know the true identities of the last four people in the Whole Earth Staff photo (*WER* #61, p. 8) The correct line-up is: 24. Corinne Cullen Hawkins; 25. Lisa Geduldig; 26. Donald Ryan and 27. Lori Woolpert.

The price for a square foot of one-eighth inch aluminum is $9.00, not $50.00, as listed in the review for Metal By Mail (*WER* #61, p. 94) Their number is 800/289-0069.

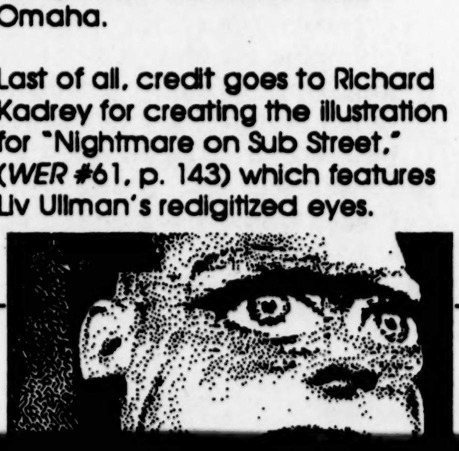
The folks at Ithaca Press have suggested that we add *Visions of Kerouac*, by Charles E. Jarvis, to the survey on the Beat movement (*WER* #61, p. 119). To order, send $4.95 to Ithaca Press, P.O. Box 853, Lowell, MA 01853. In addition, *Memory Babe* is *not* out of print and can be ordered through Viking/Penguin, 201/387-0600, for $12.95.

For those interested in sporadic news about the current beat scene, there's *Moody Street Irregulars*, a newsletter available for $10.00 for 4 issues, P.O. Box 157, Clarence Center, NY 14032.

The Alcor Life Extension Foundation (*WER* #60, p. 118, "The Cryonic Suspension of Alcor Patient A-1068") has a new address: 12327 Doherty St., Riverside, CA 92503; 714/736-1703.

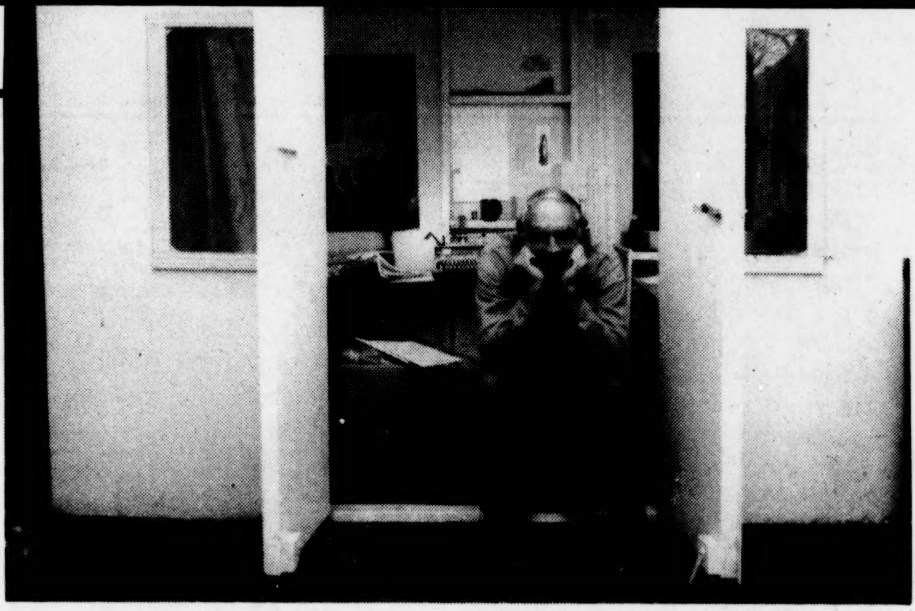
And for those wanting to tune in to AGRI-SAT ("Distance Learning," *WER* #61, p. 73) they have "indefinitely discontinued production and airing," due to competition from RFD-TV, in Omaha.

Last of all, credit goes to Richard Kadrey for creating the illustration for "Nightmare on Sub Street," (*WER* #61, p. 143) which features Liv Ullman's redigitized eyes.



GOSSIP

Guest editors usually bring along a theme for their issue of this magazine. Suitable articles are then written, solicited, reprinted, or selected from our stash of good stuff that didn't fit into previous issues. I came to this production themeless, dismayed by post-election blues, the ongoing Washington scum-&-dumb show (Webster has a word for it: kakistocracy), exploding airliners, mayhem, pestilence and woe. Isn't anything working right? How about some good news for a change?


Don Ryan

Guest editors' minimalist lair is the 6' by 10' "Doghouse" that shares our courtyard with Kathleen O'Neill's garden and Kevin Kelly's beehive.

Turns out there's plenty of action on the side of the good and the true. Virtually all of the enterprises featured in this issue share common traits: hard work, little concern for pedagogically correct politics (even among peers), and a tendency to avoid that most tempting of ego foods, confrontational combat. Those who sneer that such traits are justifications for selling out to the enemy have missed the lesson: these are success stories of factions working together effectively (if not always harmoniously) with net gain for all.

We already had some of the articles in hand. Others are by folks who are normally more reticent than they seem here; in the interest of realism and demystification I asked them to tell us straight out about their experiences in altruistic enterprises. Remember, as with all adventures, these stories may be more pleasant in the telling than as they occurred.

This WER is featured full-cover-showing on the magazine racks at Waldenbooks across the country — the first time we have had such exposure. If you're in one of those stores and don't see us, please let us know. (Let's hope we aren't displayed with sport fishing mags.)

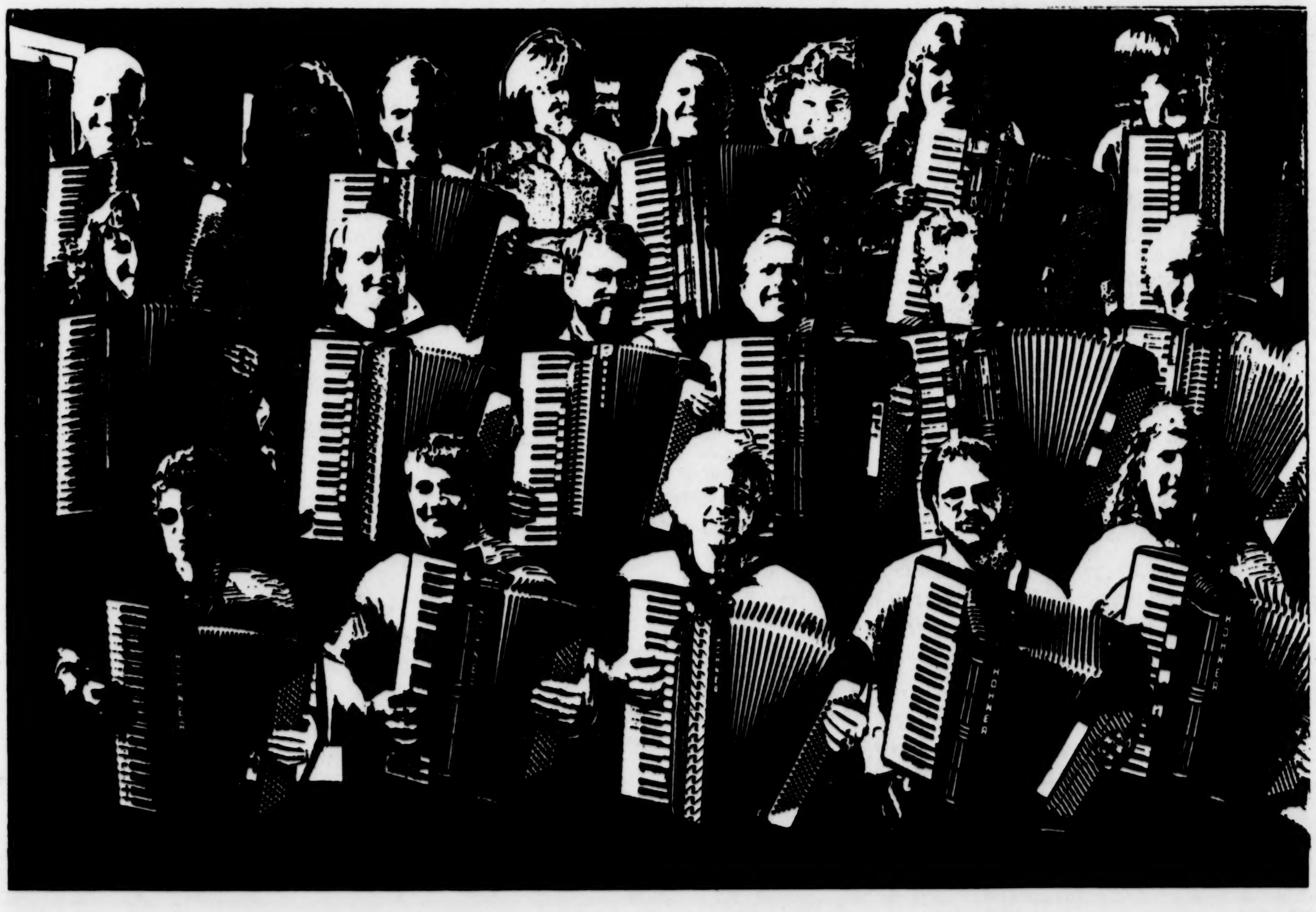
Is your body obsolete? The answer isn't quite what you might think, as WER editors Jeanne Carstensen and Richard Kadrey will demonstrate in an extensive special section of our next issue.

Resident cartoonist James Donnelly copped the top Mercury Award for illustrations. The judges liked his drawings for a water conservation program. (There's one of them on the next page.)

We're looking for video reviewers. More and more interesting stuff is coming to us in video form but we don't have the time to look.

(A book reviewer can snoop randomly and quickly see if it is worth reviewing. That's hard to do with a tape.) If you'd be interested in seeing and reviewing videos for us, let Kevin know your areas of expertise and your availability. Yes, there's money involved.

We need your help hatching a special issue (of the sort that may



Our staff, accordian to James Donnelly who thought he'd polka little fun at office mug shots.

get expanded into a book) on "The Restoration" — the science and economics of restoring the natural environment. The outlook is believable hope, though we'll countenance contrary views as well: the subject is not without controversy. We are mostly looking for many small success stories. The Adopt-A-Stream Foundation featured on the cover of this issue is one. Another is "The Restoration of an Island Ecology" in WER #60. Send your ideas/news/examples to Richard Nilsen; it's his baby.

—J. Baldwin

Co-evolved Angels and Perpetual Subscriptions

On the "Thank You" page in each issue, we honor a set of people with such uncommon optimism in the future that they have bet $1,000 that our publication (and the world) will keep going. Listed as Maniacals, they get a lifetime subscription for their confidence in us. For as long as they (or we) live, they get a quarterly copy of this magazine. As we embark on our third decade of nonprofit livelihood, we are developing a second generation of support in order to continue our cultural innovating. Starting with this issue we are seeking a choir of angelic supporters. One becomes a Co-evolved angel with a tax-deductable donation of $5,000. This level of support gets you a lifetime subscription to the magazine, and two copies of any and all other publications and media products we produce, such as the newly released Electronic Whole Earth Catalog ($150 each), for as long as we both shall live. Since we are publishing about a book a year, Co-evolvied Angels will belong to the first lifetime book-of-the-year club in existence.

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— Kevin Kelly

FRIENDS!

On the postage-paid card that is bound into the last page of this issue is a place to write the names of two friends that you believe would enjoy this magazine, but who don't know about it. If you would take a minute to fill in their addresses, and then pop the card into a mailbox at our expense, we'll try our conceptual news on them and give them a chance to join us. Thank you.

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A public service message from East Bay Municipal Utility District EBMUD

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Wipe, don't rinse dishes.

Run machine only when full.

No extra rinse cycle, please.

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Stewart Brand
Publisher Emeritus

Kevin Kelly
Editor

J. Baldwin
Guest Editor

Richard Nilsen
Assistant Editor

Corinne Cullen Hawkins
Editorial Assistant

Kathleen O'Neill
Design

Donald Ryan
Camera, Pasteup, Design

James Donnelly
Sound Effects/Typesetting

Lori Woolpert
Production Manager

Hank Roberts
Proofreading

Cindy Craig Fugett, Richard Ditzler
Bookkeepers

David Burnor
Index, Librarian

Dick Fugett
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James Donnelly, Don Ryan,
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Illustrations

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Whole Earth Column

J. Baldwin
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Richard Nilsen, Peter Warshall
Land Use

Art Kleiner
Communications

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Washington Correspondent

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Media, Politics

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California delivery: add 6% tax (BART counties add 6½%).
VISA/MasterCard orders accepted.
For computers and software: Whole Earth Electronics, 1311 B 67th Street, Emeryville, CA 94608; 800/323-8080.

. . . Solve Subscription Problems

If your subscription has a defect, please address all correspondence to us at P. O. Box 38, Sausalito, CA 94966.

. . . Adopt A Library

Share the *Whole Earth Review* — give a library a subscription! These people have (since last issue):

Gail and Tremaine Arkley to Dalles-Wasco County Library, The Dalles, OR; Pilot Rock School District No. 2R, Pilot Rock, OR; Springfield Municipal Library, Springfield, OR; North Tillamook Library Board, Manzanita, OR; Gold Beach Union High School, Gold Beach, OR.

Michael Madnick to Delray Beach Library, Delray Beach, FL; West Palm Beach Library, West Palm Beach, FL.

Elizabeth Ann Ditz to Sebastian Area County Library, Sebastian, FL; Frankfort Community Public Library, Frankfort, IN.

Thomas F. Bayard to Wilmington Friends School, Wilmington, DE.

Doug Rogers to Nebraska State Penitentiary, Lincoln, NE.

Bruce Block to Palmer Public Library, Palmer, AK.

Oregon and Iowa Librarians: Gift subscriptions are available through the generosity of Gail and Tremaine Arkley, and that of Ed Mead.

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If you are a librarian who would like a gift subscription for your library, send your request to Lori Woolpert at the above address.

SEX: Good Vibrations' catalog of sex toys and books about sex is friendly, feminist and fun, $2.00. The Sexuality Library catalog offers over 120 books about sex that won't insult your intelligence: self-help, education, erotica and more, $1.00. Or send $2.50 for both to Open Enterprises, 3385 22nd Street # WR, San Francisco, CA 94110.

FRESH! Classy underground journal for the '90s. Publishing short, personal essays, reflective poetry, line art, more. Needs bright new material monthly. Specific assignments for next six issues, guidelines, information, $3. Six-month subscription $15; year $24. NOW!press, Box 174-A, Morro Bay, CA 93442.

LOW TECH STRATEGY GAME! Learn in five minutes. Play for hours. Addicting. Board measures 11 x 11 inches; great for travel. Send $16 to T. Licata, 1540 N. LaSalle, Chicago, IL 60610.

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ADVERTISING WORKS when you reach the audience that needs your products or services. We specialize in placing ads for healthy, enlightening products in several progressive national magazines. They run the gamut from *Yoga Journal* to *Mother Jones* emphasizing environmental issues, spiritual practices, and holistic health education. Our services are free, but alas, not the ads. GPR, 2054 University Ave. Ste. 302-R, Berkeley, CA 94704. (415) 548-1680.

THE WELL (Whole Earth 'Lectronic Link): If you have a computer and modem you can be part of a unique community of people that meets online. The Well is divided into conferences that discuss just about anything you can think of. Mind, work, sexuality, Grateful Dead, and parenting are just a few. The rates are $8/month plus $3/hour for online time. Call 415/332-6106 for online sign-up, or 415/332-4335 to talk with a human being.

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MAN SEEKS MATE — liberal, responsible, physically fit, non-smoking, mostly vegetarian university professor and architect, late 40's, 5'6", originally from N.E. with many skills and interests including biking, swimming, hiking, creative arts, travel would like to share life with fit, attractive woman, 30-40's with compatible values and interests. Can relocate. Peter, 1407 Fairway Dr., #3, Tallahassee, FL 32301.

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LARGEST ALTERNATIVE ENERGY MAIL-ORDER selection: over 400 catalog pages describing almost 2000 items; price guarantee; free quarterly newsletters; all questions personally answered; send for free flyer; Jade Mountain, 2254-B Edgewood, Boulder, CO 80302.

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WILDFLOWER seed in the sand and wind, may the four winds blow you home again.

A CERTAIN BICYCLIST: An Offbeat Guide to the Post-Petroleum Age, by Paul Niquette, inventor and futurist. "Thoroughly charming . . . vital reading for our times." J. E. Goldman, Xerox. "I was very impressed with the dialogue about [future communications] . . . " Douglas R. Hofstadter, Univ. of Michigan. "crisp, bright essays . . . intensely serious point but with a chuckle on every page." E. S. Bjornsson, Earthstar, Inc. Hardback, 127 pages, 50 engravings. $11.95 plus $1.00 shipping. Resource Books, 3 Boise, Irvine, CA 92714.

GLOBAL SOLUTIONS can begin in the garden. Our catalogue features natural fertilizers, natural pest controls, water conservation equipment, organic gourmet seedlings, seeds, tools, and more. All of superior quality, all environmentally sound. Send $1.00 for your copy or call (415) 456-5060. The Natural Gardening Company, 217 W. San Anselmo Avenue, San Anselmo, California 94960.

HEALTHY FULL SPECTRUM LIGHT by Dr. John Ott. Call 1-800-234-3724

. . . Rent Our Mailing List

Send a letter to Keith Jordan, ***Whole Earth Review***, 27 Gate Five Road, Sausalito, CA 94965 for rates and information.

Recent renters: World Monitor Magazine, Mother Earth News, Music for Little People, Utne Reader, Naturist Society, The Sun, Archie McPhee & Co., Reality Hackers.

If you want your name left off mailing list rentals, please write and tell us.

. . . Change Your Address

Moving? Use our new Change-Your-Address card to let us know your new address. Ideally, we'd like to know six weeks in advance, and have a copy of your old address label.

. . . Subscribe

Subscriptions to ***Whole Earth Review*** are $20 for one year (4 issues) and $37 for two years (8 issues). Foreign rates are $24 for one year and $45 for two years. For air mail delivery anywhere in the world, add $8 per year. Send your order with payment to: ***Whole Earth Review***, P. O. Box 38, Sausalito, CA 94966.

. . . Order Back Issues

The quickest way to order back issues of this magazine is not from us but from Whole Earth Access (see address above left). ***CoEvolution Quarterly*** issues 14-43 are $3.50 each, postage paid, or $10 for four. Each ***WER*** back issue is $3 for issues 44-50, $4.50 for 51-61, and $5 for 62, postage paid. All 28 available ***CQ*** issues are sold as a set for $34, postage paid.

. . . Join the Preserves

A $25 donation secures your membership in the **Whole Earth Preservation Society and Volleyball Reserves.** It also helps to support the magazine. In return, you receive four issues of a quarterly newsletter filled with gossip, news, letters and other information. We'll print your name in the magazine (unless you prefer otherwise). Send your check to Whole Earth Review, 27 Gate Five Road, Sausalito, CA 94965. The newsletter is mailed between magazine issues to readers who have joined the Preservation Society. Thanks for your support.

New Preserves:

David Johnston
Amherst, MA

Tom Shawk
Chicago, IL

Alex Rogers
Mountain View, CA.

Sub Street Update

Things are looking up on Sub Street. Our last report made reference to ongoing nightmares and insomnia. What we are now experiencing might best be described as intermittent weird dreams. Here's an update:

New Problem

1. Labels Show Wrong Expire Date
Yes, it's true, some labels are still showing the wrong expire date. Last issue we showed you how to read your label. Lo and behold, many of you took note and wrote letting us know your label was wrong. Indeed, it was wrong; indeed it still is!

The problem is *not* with your order, which in all cases does credit you with the right number of issues. The problem is that the date printed on the label is wrong. Our renewal notices are keyed to these dates. So you may be getting the wrong notices as well. We are working on this and hope that by the time you are reading this, the problem will be solved. In the meantime, **ignore your label date.**

2. Payments Crossing
We continue to receive lots of mail about payments. The unavoidable fact is that sometimes we send you a notice at the same time you send us a payment.

Consider the following example:

Dec 31: We print renewal notices and send them to mailing house.
Jan 1: You send payment
Jan 10: We receive your check
Jan 15: Renewal notices mailed
Jan 17: We deposit your check-
Jan 22: You receive renewal notice
Feb 1: You receive your bank statement. You write incredibly kind note: "You idiots! I paid you with check #234 for $20. You deposited it already. Can't you ever get it straight?"

Please don't waste our reply envelope (30¢) telling us that you've paid. Assume that your payment crossed our notice in the mail.

If you receive **two** notices **after** you have paid, **then** notify us.

Out, Out Damned Spot!

The big problems we are having now arise from the fact that much of the data in our old data base was mangled. MacSUB, as good as it is, cannot make a silk purse out of a sow's magnetic tape.

Overall, we continue to believe that in-house fulfillment will be our salvation, that MacSUB is not Macbeth, that the spots will go away, that the Easter bunny cares about us . . . .

Northland Poster Collective

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Our HyperCard driven electronic CD for the Macintosh, full of sounds, sights and good stuff.

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POINT FINANCIAL REPORT: 1988

MAGAZINE INCOME	**1st quarter**	**2nd quarter**	**3rd quarter**	**4th quarter**	**Total**
Subscriptions/back issues	$100,508	$ 72,519	$ 74,080	$127,308	$374,415
Mailing list rental	5,194	2,874	2,582	4,097	14,747
Direct distribution	18,193	16,385	12,255	21,166	67,999
Warner (national newsstand)	8,890	19,023	17,146	11,626	56,685
Book sales	3,505	2,209	2,607	6,129	14,450
Newspaper column	1,341	1,304	1,550	1,453	5,648
Contributions	2,240	2,122	3,435	4,789	12,586
Other	5,714	3,038	1,950	2,376	13,078
Total Income:	**145,585**	**119,474**	**115,605**	**178,944**	**559,608**
EXPENSES					
Salaries: Editorial	14,544	10,534	13,475	12,168	50,721
Production	17,447	8,097	15,797	9,730	51,071
Circulation	12,791	13,337	8,737	10,223	45,088
Office	10,556	8,994	12,284	14,059	45,893
Research	4,377	5,903	4,260	4,599	19,139
Outside production services	1,104	367	1,433	630	3,534
Writers/contributors	9,375	6,825	5,600	9,390	31,190
Magazine printing	29,134	26,514	26,483	26,181	108,312
Subscription fulfillment	10,557	14,395	17,026	21,102	63,080
Circulation promotion	15,138	9,656	7,738	10,486	43,018
Direct distribution	1,652	1,611	1,223	1,450	5,936
Warner (national newsstand)	2,881	2,704	2,860	2,066	10,511
Insurance	390	854	1,179	1,985	4,408
Health insurance	711	830	831	868	3,240
Vacation	384	1,444	1,824	7,008	10,660
Taxes	7,177	12,280	6,682	1,731	27,870
Supplies/research	2,843	3,468	2,360	2,379	11,050
Equipment rental/maintenance	1,934	1,065	1,511	1,447	5,957
Telephone/networks	2,141	2,396	2,091	1,609	8,237
Postage	2,877	2,281	1,979	4,108	11,245
Rent/maintenance/utilities	10,465	11,102	10,865	11,203	43,635
Legal/professional services	140	427	3,010	3,365	6,942
Interest/bank charges	1,618	1,617	1,222	1,298	5,755
Miscellaneous expenses	– 125	306	658	57	896
Total Expenses:	**160,111**	**147,007**	**151,128**	**159,142**	**617,388**
MAGAZINE PROFIT/LOSS	**-14,526**	**-27,533**	**-35,523**	**19,802**	**-57,780**
POINT FOUNDATION					
Apple HyperCard advance	50,000	0	0	0	50,000
CD-ROM advance	0	40,000	30,000	30,000	100,000
Signal/Fringes advance	0	65,000	32,500	32,500	130,000
Whole Earth Review	145,585	119,474	115,605	178,944	559,608
Total Income:	**195,585**	**224,474**	**178,105**	**241,444**	**839,608**
Apple HyperCard	22,349	431	0	0	22,780
CD-ROM	4,710	36,304	55,738	22,894	119,646
Signal/Fringes	14,266	60,919	5,394	26,194	106,773
Whole Earth Review	160,111	147,007	151,128	159,142	617,388
Total Expenses:	**201,436**	**244,661**	**212,260**	**208,230**	**866,587**
TOTAL PROFIT/LOSS	**-5,851**	**-20,187**	**-34,155**	**33,214**	**-26,979**

The WELL
profit/loss: 4th quarter 1988

Revenue	**$ 94,856**
Expenses	
Payroll	36,780
Computer/communications	28,873
Office	6,284
General/administrative	4,643
Sales	3,067
Total Expenses	**79,647**
PROFIT/LOSS	**15,209**

PUBLISHING A MAGAZINE is costly, even such a bare-bone publication as *Whole Earth Review*. For each quarterly issue, Point loses between $15,000 and $16,500, or in the ballpark of $60,000 a year. That loss is softened somewhat by project monies, such as the books we publish. Unfortunately, not enough to put us in the black.

Despite an increase in our subscription price, revenues are not significantly different from two years ago (last year we did some direct mail and special promotions that increased revenues noticeably). Expenses, however, have gone — and will continue to go — up.

We're considering various projects that will generate modest contributions to cover magazine costs. These could include self-publishing a book; doing some smaller, desktop publishing jobs; or another CD-ROM disk.

Of course, a few angels donating $10,000 each would also help. —Cindy Fugett

THANK YOU: SUPPORTING SUBSCRIBERS

Supporting Subscribers are those wonderful people who give us a lot more money than the cost of a regular subscription in order to support the work of the magazine. In addition to the pleasure of knowing you are helping us survive, as a Supporter you also benefit by deducting most of your contributions from your taxes (see your tax advisor for details). As our way of saying thanks, we print your name and hometown in the magazine (unless you prefer to remain anonymous). There are three types of Supporting Subscribers:

- **MANIACAL:** $1,000/life. Maniacs get their *WER* in an envelope, air mail, for the rest of their life or ours, whichever comes first.
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and one anonymumph

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Next Issue

Consider the question: Is the body obsolete? Some leading experts in artificial intelligence predict that the human body will soon be unnecessary. While critics claim that the question itself is the problem.

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Also: a new look at complexity theory, a Gaian perspective on trees, a glimpse of cyberpunk culture, a strong argument for local science, and the usual More...

THE FRINGES OF REASON

From editor Ted Schultz's introduction:

This is not a book about Orthodoxy.

Instead, this is a book about tinkerers who spend their lives in basements perfecting perpetual motion machines, contactees who converse on a first-name basis with entities from outer space, and reincarnationists who remember past lives as royalty on the lost continent of Atlantis. This is, in fact, a book about people so fed up with Orthodoxy and the mundane bit part it handed them that they did something about it. Something imaginative. Something colorful. Something . . . *different.*

Excerpts from Stewart Brand's forward:

Oh God, how did I get into this room with all these *weird people*?

On the other hand, it beats being in your average movie theater, and even your average science conference. The believers of strange, strong beliefs are living a particularly ripe form of myth, tapping directly into hidden cultural structures that probably shape the rest of us as well, though indirectly. But how does one look with them without, you know, succumbing?

The answer is provided by Ted Schultz and cohorts. You look into the strange beliefs with all the tools and skepticism of science, and you look into the strange believers with the tools of science and the sympathy of a good anthropologist or psychologist, seeking not the insult of cure but the compliment of understanding...

When I started hanging out with scientists in the last few years I was at first startled and then warmed to discover how comfortable they are with science fiction. Most read it, and many write it. The scientific process really is two-minded; it has to be to get anywhere. One mind gleefully speculates, the other ruthlessly slaughters speculation. Such minds will welcome this book of fiction science.

Listen! It's the theme music from "The Twilight Zone" backward. (*Eed eed eed eed, eed eed eed eed . . .*)

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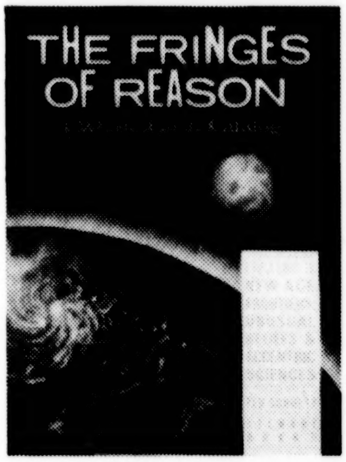
ENTERING
THE
DAWN
ZONE...



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Ted Schultz
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because it's a salad. Edible flowers are a significant cash crop for small farms. P. 64

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